THIS WEEK'S National Petroleum NEWS

V660.5 v. 21 pt. 1

Index to Coming Meetings

International Petroleum Congress, Tulsa, Oct. 5, 12.

American Petroleum Institute, Division of Development and Production Engineering, Tulsa, Oct. 7, 8. (To meet during Tulsa Expo.)

Independent Oil Men's Association of New England: Worcester, Mass., Oct. 9.

Missouri Oil Men's Association, President Hotel, Kansas City, Mo., Oct. 15.

Pennsylvania Independent Oil Men's Association, William Penn Hotel, Pittsburgh, Pa., Oct. 15, 16.

Big Four State Jobbers Convention, President Hotel, Kansas City, Oct. 15, 16, 17.

Independent Oil Men of America, Stevens Hotel, Chicago, Oct. 21, 22, 23.

Northwest Petroleum Association, fall convention, Radisson Hotel, Minneapolis, Minn., Oct. 24.

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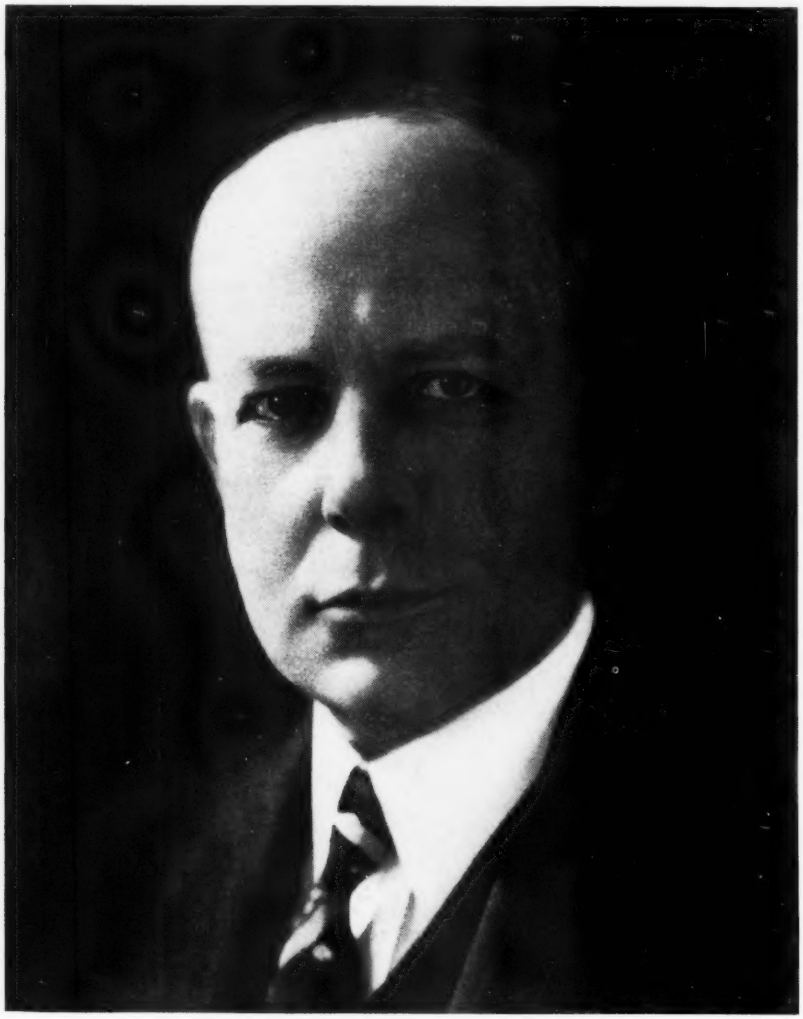

CHARLES J. WRIGHTSMAN, president of the company bearing his name, last week sold a 40-acre lease in the East Earlsboro pool to the Carter Oil Co. for a reputed cash consideration of $1,000,000.

Mr. Wrightsman is a genuine wildcatter in the Mid-Continent and is noted for his success in that line. After discovering oil his usual policy is to sell to a producing company rather than to operate.

Entering the business in 1904 at Pawnee, Okla., while still a practicing attorney he gave up law in 1908 to give his full time to oil. He opened the South Cleveland, North Nowata and several other oil fields. His greatest strike was one of the two discovery wells in the Cushing field. The T. B. Slick-B. B. Jones-Wrightsman well was brought in the same week as the C. B. Shaffer well a mile and a half away.

Mr. Wrightsman's early home was at Dayton, Ohio. He opened his first law office at Oklahoma City in 1890 and served as counsel for a number of oil companies operating in Indian Territory and the Osage reservation.

The Wrightsman lease sold last week was in the NE NE of Sec. 19-9-6E. One well on the lease was producing 7200 barrels per day a month after its peak of 8300 barrels. Three other wells are drilling.

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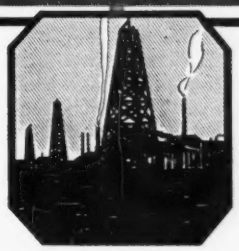

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Vol. 21 **CLEVELAND, October 2** **No. 40**

Agents' Agreements, Under the Code, Protested to Trade Commission

CLEVELAND, Sept. 28

INTERPRETATION, under the code of marketing practices, of the so-called agents' agreements some of the big oil companies make with independent owners of service stations has been put up to the Federal Trade Commission by the Stoll Oil Refining Co., Louisville, Ky.

In a letter from C. C. Stoll, president of the company, to the commission at Washington, Mr. Stoll announced his company, which had signed to accept the code, was withdrawing its acceptance as far as the state of Indiana was concerned.

The case which brought forth the protest of the Stoll company was in Pekin, Ind., where the Standard of Indiana took away the business of the Kay Service Station, an old customer of the Stoll company, under an agency agreement contract.

The Standard of Indiana's agency agreement, known as its AAA lease, provides for a return to the station owner based on the volume of gasoline sold, similar in arrangement but not in amount to the Q.D.A., and in addition a flat monthly rental for his property.

The Stoll company set forth that it had held this customer for a long time paying him only the commissions allowed in the Q.D.A. Shortly after the Stoll company had signed the code of ethics, it stated, the Kay station notified it to take out its equipment, saying that it could get $30 a month additional to the Q.D.A. allowances from the Standard of Indiana.

A letter to Mr. Stoll from E. G. Seubert, president of the Standard Oil Co. of Indiana (copy of which was sent to the Commission, together with other correspondence on the matter, with Mr. Stoll's letter of protest) states that no unethical methods were used in securing the business of the Kay station.

Apparently there is no clause of the code that covers the particular arrangements made by an oil company with an Independent station which thereupon becomes its agent. One clause in the code provides that oil companies owning stations may lease them to dealers, but only at a fair value of the property. Another provides that oil companies may acquire by lease, or sub-lease, service stations or sites; and that they may be released or licensed to dealers, but not at a reduced rental from that paid by the oil company.

The question of agency agreements, as allowable under the code, has been discussed by the directors of the American Petroleum Institute, however, and it was stated, following one of these meetings that the so-called AAA agreement of the Standard of Indiana was considered allowable.

This agreement when first publicly adopted by the company back in 1927, consisted of a resale contract in which the station owner agreed to give his entire time to act as an authorized agent for the Standard; agreed to sell at prices established by the Standard and so on. His compensation, in this resale contract, was at that time 2½ cents a gallon up to 6000 gallons a month, with an additional half cent a gallon for sales from 6000 to 10,000 gallons a month; one cent additional if sales were between 10,000 and 12,000 gallons and 2 cents additional to the original 2½ if sales were over 15,000 gallons a month.

In addition to the resale contract was the individual contract with each dealer or station owner by which the company paid him a lease for its property as it had in the past.

The letter from Mr. Stoll to the commission, sets forth his company's position as follows:

September 26, 1929.
C. C. STOLL

Hon. Federal Trade Commission,
Washington, D. C.
Gentlemen:

"In sending you this communication we regret that it becomes necessary for us to withdraw our signature from the Code of Ethics so far as it applies to Indiana as we are not willing to work under conditions that will permit that injustice done us at Pekin and then refer to it as ethics.

"We do not withdraw our signature so far as Kentucky is concerned because, fortunately, in Kentucky we know nothing of such practices as this and invite your special consideration of the statement we made to these people that at a meeting called by the Kentucky State Chairman of the Code of Ethics here in Louisville, at which there were representatives of all the large companies operating in this State, when our representative brought up for discussion this Pekin case, it was the unanimous opinion of those present that this practice, as illustrated in this Pekin case, was unethical, simply a different method of cutting the price, and the general expression was that they hoped it would not get into our State of Kentucky.

"Surely this statement will impress you that you have probably been misled in setting your seal of approval upon this method of doing business and it is for this reason, not only in our own interest but in the interest of the general oil business, that we

ask you to reconsider your decision and indicate your disapproval of this method of securing business.

"Mr. Kay, doing business as Kay's Service Station at Pekin, Ind., was our good customer. We started him in business; together we built up a very fine business profitable to himself and to us. We thought we were treating him fairly. We were selling him on the Q.D.A. basis and he was thoroughly satisfied. A few days after we had signed the Code of Ethics he notified us to take out our tanks and equipment that he would get $30.00 per month from the Standard Oil Co. of Ind. in addition to the Q.D.A.

"THIS was a queer proceeding to us when everybody seemed to be trying to clear up the situation with a Code of Ethics and we doubted the statement and our representative persuaded Mr. Kay that it would be to his best interest to stay with us on the regular basis. Our letter August 24 to President Seubert gives in detail just what happened.

"Yesterday Assistant General Manager H. A. Lewis and Mr. Lang, the Evansville manager for the Standard Oil Co. of Ind., visited us here. We had a most pleasant discussion of the case. They informed us that what they had done at Pekin, Ind. had the full approval of the Code of Ethics, under Rule 14, and the Federal Trade Commission and that they had been doing this thing for five years. We explained that it was the first time that it had struck us and we were alarmed at the possibility of losing business in this way. We asked them in what way we had been unfair to Mr. Kay and tried to point out to them that they had simply by this method of theirs paid him $25.00 per month more than he was getting from us. Were we unfair to Mr. Kay that we did not value his premises and pay him something in addition to the Q.D.A.?

"We have scores of other dealers in Indiana to whom we are selling on the Q.D.A. basis. Is it our duty to go to each one of these and pay him a rental for his place in addition to the Q.D.A.? Or must we wait until the Standard Oil Co. of Ind., or perhaps some other oil company, drops in and takes this business away from us by what is simply a subterfuge instead of a cut in price. You must surely see the threat that hangs over us in this matter and you will not be surprised when we tell you that we feel great uneasiness for our business.

"We acknowledge to ignorance of the existence of this condition up to this time and we could not understand why so many independent oil men, especially the Independent Oil Men's Association, refused to sign the Code of Ethics but now it is clear to us, and we can only express our surprise that this thing has both the approval of the A.P.I. and of the Federal Trade Commission and it is because we are hoping that when you see in this concrete case how it works that you will realize the great injustice of it, the turmoil it must cause in the oil industry and that you will reconsider your decision and see that justice is done in this matter.

"We think it is perfectly fair for the Standard Oil Co. of Ind. or anyone else to go out and find a vacant place, lease it or buy it, employ whom they please as their agent to represent them, but we think it is the rankest injustice and violation of all ethics to approve of their using this as a method of grabbing the business of a competitor as they have done in the Pekin case.

"There is another phase of this case which you must take into consideration, that is that Mr. Kay not only gets $25.00 per month additional paid by the Standard Oil Co. but he gets all of his equipment and installation free, while you, thru the Code of Ethics, say that the grocer or other small dealer who does not get this extra renumeration and become the agent of some oil company, and must pay for his own installation. Surely this cannot be reconciled as justice and is a direct slap at small business and forces every dealer in self-defense to rent his place to some oil company in order that he might get his installation free besides being paid a monthly rental.

"We frankly believe that these two gentlemen yesterday were persuaded of the injustice of this matter, while we do not wish to commit them, but when we told them that a big concern like the Standard Oil Co. of Ind. should be ashamed of itself to step into business which we had spent money and time to build up, and grab it from us in this way, we could readily see by the expression on their faces that they were impressed themselves and their only response and defense was that it is approved by the Code of Ethics, under Rule 14, and the Federal Trade Commission.

"WE FURTHER stated to them that we believe that we had cause for damage against them for taking our business away after this fashion by what is nothing but a bribe, for Mr. Kay will simply go ahead with his business in the same way as he has been doing, selling his by-products and repairing cars, etc., and the difference is that we have lost and the Standard Oil Co. has gained by paying him for his business.

"This letter is not being written you by any novice in the business. This writer has since 1881 for a period of 48 years been continuously in the oil business and during all this time in the marketing end altho touching every phase of the business besides. The first fifteen years of this time was with the Standard Oil Co. in the old days when the "knock down and drag out" policy was in vogue and the writer confesses to have had much to do with that, but disgusted with that method in 1896, thirty-three years ago, this company was organized. We, ourselves, in the early days experienced the effect of the "knock down and drag out" policy until public opinion arose and compelled a change.

"NOW, frankly, we see very little difference between those old times, and this action at Pekin except that the Pekin case seems to have the approval of law in its unfairness. Mr. John D. Rockefeller seemed to see very much that was unethical and improper in the actions of Mr. Robert W. Stewart, the former president of the Standard Oil Co. We wonder what he would say and what would be his reaction to this Pekin case, when a small company of ours is practically robbed of a business that approximates about 4500 gallons per month in summer-time and that meant so much to us and that had been secured by hard work. We are sending a copy of this letter to the Code of Ethics Committee of the A.P.I. at New York City and are hoping for large publicity, that the oil men of this country may know what is being done, for we frankly confess that we had signed the Code of Ethics without a knowledge of this practice which now is threatening our business in a manner which makes us feel helpless to prevent it.

"May I just say in conclusion that our company has really needed no Code of Ethics so far as cutting is concerned. We have a clear record of no secret rebating. We have felt and still feel that our loyal customers are entitled to the same price that we make to the fellow who demands a cut, and while we have suffered loss of large gallonage at times by secret rebating on the part of others, we have had the consciousness at least that we have been fair.

"We trust that this will have your full consideration and if you say that you are helpless to prevent this menace to our business, we wish to consider other methods that will enable us to defend ourselves against this unfair practice."

The letter from President Seubert to Mr. Stoll, setting forth the Standard of Indiana's position in the matter is as follws:

"I am in receipt of a report from our Sales Department people in which they advise that on July 30th we closed a regular AAA Lease with Mr. Kay for one year from September 1, 1929. Under date of August 8th Mr. Kay wrote our Evansville Office stating that, as he had a contract with another oil Company, it would be necessary to cancel his agreement with us. Our representative called

on Mr. Kay on August 12th, and an investigation disclosed that Mr. Kay had no lease with any other Oil Company but had a Tank Rental Agreement with your Company. As he could not find his copy of this agreement he wrote to your Company asking that you send him a copy of same, and up to the present time you have refused to give him such a copy.

"Mr. Kay told our representative that he was very anxious to sign up with us, and under date of August 29th he wrote our Evansville Manager to that effect, stating that in making the change to Standard Oil Company's products he did so after giving our proposition due consideration from every angle.

"From the report which I have received from our Sales Department people I am convinced that no unethical methods were used in securing the business of the Kay Service Station."

Entire Code Committee To Be at Tulsa

NEW YORK, Sept. 28.—All members of the National Committee on the Interpretation of the Code of Ethics will be in Tulsa Oct. 3 to hear questions and discussions concerning the code, William R. Boyd, Jr., executive secretary of the American Petroleum Institute, said this week. Many state executive chairmen are expected.

The members of the national committee are: H. T. Klein, The Texas Co., chairman; E. L. Shea, Tide Water-Associated Oil Co.; E. S. Hall, Standard Oil Co. of New Jersey; Roy B. Jones, Panhandle Refining Co., and Mr. Boyd.

Most of the time at the Oct. 3 hearing is expected to be taken up with consideration of Rules 3, 10, and 17 of the code. The first two of these rules cover the use of paint at dealers' stations, and the last pertains to the posting of prices.

The committee will hear at open sessions the questions and discussions of the questions that have risen since the code went into effect. It may be necessary, Mr. Boyd said, for the committee to hold an executive session at night to prepare recommendations to be presented to the board of directors of the institute when the board meets Oct. 4.

Mr. Boyd is pleased at the progress the code has made and particularly at the fact that more than 1200 oil companies have signed the Federal Trade Commission acceptance forms. State meetings are bringing in many of the smaller companies and the number of signatories to the code is expected to grow steadily.

CLEVELAND, Sept. 30.—The Wyoming Public Service Commission has filed a complaint with the Interstate Commerce Commission alleging that 15 railroads maintain discriminatory rates on oil shipped from Wyoming points. The discrimination is charged in favor of Mid-Continent fields.

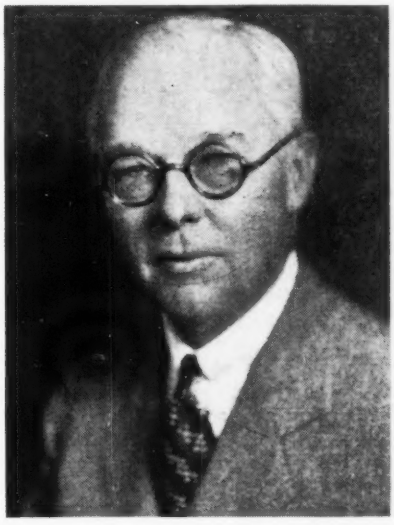


Photo by Blank-Stoller, Inc.

A. J. McGuire
President of the Wadhams Oil Corp., Milwaukee, one of the largest independent marketers. Mr. McGuire was president of the Bartles McGuire Oil Co. which was merged with the Wadhams Oil Co. this summer

Virginia Jobbers Approve Code

ROANOKE, Va., Sept. 28.—The code of marketing practices was the chief topic discussed at the seventh annual convention of the Virginia Oil Men's Association held at the Patrick Henry hotel Sept. 27.

M. Markham Flannery, director of the trade practice conference, presented the code to the 60 wholesale marketers in attendance at the meeting. The association adopted the code.

Officers re-elected at the convention were, M. B. Whiting of Clifton Forge, president, P. P. Hunter of Roanoke, vice president; Abe Rubin of Charlottesville, vice president; and Fred Rade of Rosslyn, vice president. Three new members were added to the board of directors as follows, W. C. Hilderman of Danville, J. M. Graves of Richmond and J. W. Hornsby of Yorktown.

The jobbers were welcomed to Roanoke by Mayor C. D. Fox. Oscar L. Shewmake of Richmond, general counsel for the association spoke on legislation which the organization proposes. Short talks also were made by J. M. Graves, district manager for the Standard Oil Co. of New Jersey, and L. E. Isbell of The Texas Co.

At the banquet in the evening P. S. Ford of Martinsville was toastmaster and James M. Hayes, Jr., state motor vehicle commissioner, was speaker.

Prizes in the golf tournament held Friday afternoon at the Roanoke Country Club were awarded to J. W. Hornsby, Ed Ruth of Rosslyn, Spot Crouse of Richmond, M. B. Whiting, and A. L. Tenser, Jr., secretary of the association, Richmond.

CLEVELAND, Sept. 30.—J. Burton Weeks, president of the American Motorist's Association, has issued a statement approving the oil industry's new code of marketing practices.

American Petroleum Institute report of refinery operations in the United States for the week ended Sept. 28, compared with the week ended Sept. 21

Districts	Per Cent of Capacity Reporting	Crude Run to Stills Wk. Ended 9-28 (Barrels)	Crude Run to Stills Wk. Ended 9-21 (Barrels)	Per Cent of Reporting Capacity Operated Wk. Ended 9-28	Per Cent of Reporting Capacity Operated Wk. Ended 9-21	Stocks Reported in Thousands of Barrels: Gasoline Stocks Sept. 28	Gasoline Stocks Sept. 21	Gas & Fuel Oil Stocks Sept. 28	Gas & Fuel Oil Stocks Sept. 21
East Coast	100.0	3,336,900	3,593,000	84.0	90.5	4,279	4,359	8,922	9,118
Appalachian	90.5	596,400	605,700	81.4	83.9	837	810	750	768
Ind., Ill., Ky	98.7	2,145,700	2,175,900	92.7	94.0	4,106	4,267	3,622	3,624
Okla., Kan., Mo	89.5	1,980,100	1,968,500	74.1	82.7	2,358	2,189	4,306	4,325
Texas	90.4	4,269,400	4,161,500	91.8	89.8	3,743	4,194	12,895	12,931
La., Ark	96.7	1,391,100	1,295,900	81.6	76.0	1,735	1,792	5,343	5,238
Rocky Mountain	93.5	480,100	447,900	55.3	51.6	1,740	1,746	960	965
California	95.0	4,876,700	4,978,200	87.3	85.7	12,511	13,045	108,048	108,099
Total U. S.	94.4	19,076,400	19,226,900	84.8	85.8	31,309	32,402	144,846	145,068
Texas (Gulf Coast)	100.0	3,366,000	3,295,500	95.5	93.5	3,110	3,569	9,708	9,806
La. (Gulf Coast)	100.0	969,200	875,300	89.4	80.6	1,485	1,533	4,591	4,396

The three judges in National Petroleum News $500 cash contest for field men at the Oil Exposition at Tulsa: C. P. Dimit, general superintendent Gypsy Oil Co., Tulsa, chairman; Charles Jacobsen, southern district superintendent for the Barnsdall Oil Co., Tulsa; and John Power, field man on National Petroleum News editorial Staff

Judges For $500 Prize Contest

TULSA, Sept. 30

HERE are the three men, all with practical field experience, who will judge your entries in NATIONAL PETROLEUM NEWS contest for practical ideas secured by field men while visiting the Oil Exposition at Tulsa, Oct. 5 to 12.

They are the men who will award the $500 in cash NATIONAL PETROLEUM NEWS is giving free, in 15 prizes, to men employed in field work for any oil company who tell best what they see at the Tulsa exposition that can be worked out on their own job, or in some phase of production work, to make or save money for their company.

C. P. Dimit, general superintendent of the Gypsy Oil Co., Tulsa, is chairman of the three judges. His qualifications to pass on the practical value of suggestions turned in by field men, in this contest, is attested by the fact he is chairman of the production practices committee of the Mid-Continent chapter of the American Petroleum Institute Division of Development and Production Engineering. Mr. Dimit is also a director of the Oil Exposition.

Charles Jacobsen, southern district superintendent of production for the Barnsdall Oil Co., Tulsa, is also a judge in the contest. His field experience has been such that the same Mid-Continent chapter of the field division of the institute made him chairman of its drilling practices committee.

John Power, field man on NATIONAL PETROLEUM NEWS' editorial staff, at its Tulsa office, is the third judge. He is the man who spends his time, for this publication, in visiting new fields and producing properties in old fields, in the Mid-Continent. He writes of the practical ideas he sees worked out by field men there—the same kind of ideas that are going to win cash prizes in this contest. Mr. Power has had three years' experience on tools, both rotary and standard, and on production, and a year's experience in the land and scouting department before coming to NATIONAL PETROLEUM NEWS' staff.

That the practical nature of the ideas submitted will be the chief point considered in awarding the fifteen cash prizes was emphasized by Mr. Dimit and Mr. Jacobsen, in accepting positions as judges in the contest.

Many field men are ingenious enough to work out, on company properties, their own practical suggestions that save money in the operation of the lease, and add to the comfort and efficiency of the men working there, they said. With 500 exhibitors at the Tulsa Exposition, the majority showing new equipment for use in the oil fields, there will be suggestions for a host of practical ideas for the field men to submit in the contest, they believe.

NATIONAL PETROLEUM NEWS' part in the contest is complete. The $500 in cash prizes is ready to be handed out just as soon as the judges name the 15 winners. This they will attempt to do just as soon as possible after the exposition closes and they can study the suggestions and ideas turned in.

NATIONAL PETROLEUM NEWS' booth at the exposition will be Contest headquarters. A padlocked box will be kept there in which entries in the contest will be placed. The key will be in the hands of the chairman of the judges. Only he will be able to open the box and he will do so in the presence of the other judges when the work of awarding the prizes starts.

All that field men taking part in the contest must see to is that their idea or suggestion, with their name and address plainly written on the same paper or firmly attached to it, is deposited in the contest box. NATIONAL PETROLEUM NEWS will furnish facilities for field men to write their ideas at its booth, or men on NATIONAL PETROLEUM NEWS' staff familiar with field work, will help them write it. Of course many field men will bring their ideas to the booth already written on paper.

A great thing for the field men themselves, for the oil producing companies and for the exhibitors at the Exposition, is the way the NATIONAL PETROLEUM NEWS' contest is being discussed throughout the Mid-Continent.

In the fields, around drilling wells, in warehouses where the men gather at noon before going back on the job, from superintendent to roustabout, many are now planning to take part in the contest.

Field Men—Get in on This!

WHAT can you see at the Tulsa Oil Exposition than can be worked out in your job to make money for your company?

Come to the NATIONAL PETROLEUM NEWS Booth on the Exposition Grounds, or ask any member of the NATIONAL PETROLEUM NEWS Staff for further information about this contest.

Tell National Petroleum News and Win

First Prize - - - -	$200.00 Cash
Second Prize - - - -	100.00 Cash
Third Prize - - - -	50.00 Cash
Two Prizes, Each - -	25.00 Cash
Ten Prizes, Each - -	10.00 Cash
Total - - - -	$500.00 Cash

NATIONAL PETROLEUM NEWS is giving $500.00 in 15 Cash Prizes for ideas secured by oil field men while visiting this Exposition. For example—

1—Do you see a working barrel, the design of which will get the production cheaper than the one you are now using? Why?

2—Do you see any new ways of rigging-up to pull tubing or rods, which are faster, cheaper or safer than the methods you now use? Why?

3—Do you see any new drilling tools, either rotary or standard, which will make hole cheaper or easier than those now being used? Why?

4—Do you see any new models of equipment which are an improvement over the ones you are now using? Why?

Any man employed in field work for any oil company can take part!

BRING your idea to the National Petroleum News' booth on the Exposition grounds. You can write it yourself or men there familiar with oil field work will help you write it. It is the idea that counts, not the way it is presented.

Competent judges, including experienced production men with oil companies and a National Petroleum News man, will pick the winners in this contest shortly after the Exposition closes.

Five hundred companies have exhibits at this Exposition, where new equipment is shown, with trained men to explain its use. There are practical demonstrations every day of new ways of doing all kinds of oil field work—welding, producing "strippers" and big wells, cable tool and rotary drilling, safety and first aid methods. These exhibits and demonstrations will give you new ideas you can apply to your own work.

Cash in on your trip to the Tulsa Oil Exposition!

Bring your ideas to the National Petroleum News' Booth and enter them in the CASH—OIL FIELD IDEA CONTEST.

***Every* man who enters this Contest receives a copy of "New Oil Field Practice" FREE. This is an eighty-page booklet describing the latest production methods and published *exclusively* by NATIONAL PETROLEUM NEWS.**

Ask Any NATIONAL PETROLEUM NEWS Man

Production Executives Praise Contest

"ONE of the best things that has been done to stimulate the interest of the field man in what he will see at the exposition" was the way M. R. Shaffer, superintendent of the Empire Oil & Refining Co. commented on NATIONAL PETROLEUM NEWS' field men's idea contest.

Mr. Shaffer's response was typical of field men, superintendents and executives generally when they read the announcement of N. P. N.'s idea contest in its Sept. 25th issue.

"We fellows who do the heavy in the field," said one farm boss in commenting on the contest, "sort of get out of touch with what is going on in the business. We are way out here on a lease where we have our own troubles, and our own grief, and we have to spend so much time trying to keep up with the leases we work on that we don't get a chance to see the new equipment and the new ways of doing things that are being brought out. We do get a chance to look things over at the exposition, and lots of times we see something that we have never heard of, but something that will do exactly what we have been trying to get done for a long time.

"I know that I expect to see something at the show that I can use here on the lease that I am pretty sure will save the company some money. And I'm going to enter it in NATIONAL PETROLEUM NEWS' contest, for I can sure use that $200, or any part of it."

"Skelly Oil Co. has been contemplating doing something along the same line as this contest," said H. M. Stalcup, vice president in charge of production for that company. "We bring a lot of men into the show on company time and expense and we want them to get the most out of it. This contest will help to bring the boys in with their heads up, looking for ideas that they can apply on their own jobs to company advantage."

"These fellows from the leases and the derrick floors are familiar with the problems there, and by showing them that there is money in it for them, NATIONAL PETROLEUM NEWS is doing the oil companies another great service. We will see that all of our men are informed of the contest, and we will tell them to get in behind it and have a Skelly man win first prize if possible."

"Two hundred dollars is two hundred dollars in any language," said one gang pusher. "So is ten dollars, for that matter. The company is always after us to think of better or cheaper ways of doing something, and the exposition is the best place to get that kind of ideas that I know of.

"When we are on the job we are too busy trying to get the well back on the pump to think much about doing things any different than we have always been doing them. But with a chance to see everything that is new along our line of work, and a crack at 200 smackers for doing it, we ought to have a pretty successful time at the exposition."

"It's the best thing that has been done in a long time," said Emmet Dougherty, assistant superintendent of the Sinclair Oil & Gas Co. "We have some smart boys working for us, and we would like to see them cash in on the ideas that they get out of the exposition. They have to work pretty hard during the year, but they get a lot of good practical knowledge out of their hard work and experience which they can apply to what they see at the exposition. And NATIONAL PETROLEUM NEWS now has given them a chance to cash in on it. All of our boys are looking forward to their trip in, and to winning the contest. I wish I were eligible, I'd like a chance at it myself."

But Mr. Dougherty isn't eligible. The contest is being put on for the men in the field, and for the men who are doing the work in the field. Nearly everyone, in commenting on this phase of the contest, says that keeping the contestants limited to field men is a good idea, for in that way the man that the company is most anxious to educate at the exposition has his interest aroused as it would not be were the contest open to every one—general superintendents, engineers, etc. It is field men's ideas that are wanted, and it is field men that will win the $500 in prizes NATIONAL PETROLEUM NEWS is giving.

BUT because he is excluded does not mean that the executive is not fully aware that he benefits from the Idea Contest. Said A. W. Ambrose, manager of the producing department of the Empire, "I think that NATIONAL PETROLEUM NEWS is doing every one connected with the exposition a real service by staging this contest. The oil companies spend a lot of money to bring their men in to the show, and anything that will make the men more observant of what there is here for them is worth real money to the oil company.

"We bring our men in for the purpose of having them see the latest in producing and drilling equipment, but it is sometimes hard to get over to them the idea that this new type of stuff can be used on the leases on which they work. By offering the cash prizes as NATIONAL PETROLEUM NEWS is doing it is impressed on these field men that there must be a use—a real use—for the things they see, and a use for them on the very properties on which they work. We are heartily in favor of the Idea Contest, and will give it our full support."

"The Idea Contest is beneficial to the field man, of course. Beside his chance at some money, and I think the NATIONAL PETROLEUM NEWS is being very liberal in its prizes. The field man is given an added urge to learn something at the exposition. What he learns should be helpful to him in his work, and to the company he works for.

"THE exhibitor gets a lot out of it, too. He will have a great deal more attention paid to his product if the field man looking it over knows that by understanding what he sees he may have a chance to win some money for himself. I am sure that the exhibitors will feel that the exposition is worth what it costs him if the field man, who uses his equipment, is paying the closest kind of attention to the exhibits. For, although the field man buys very little equipment any more, if he is thoroughly familiar with all the latest models and designs that are on the market, he is able to suggest equipment frequently that will fit exactly the problem which he and the superintendent is trying to solve on his particular lease."

Pennsylvania Crude Cut 25 Cents

OIL CITY—On Oct. 1 the Joseph Seep Purchasing Agency announced a reduction of 25 cents per barrel in prices it will pay for all Pennsylvania grade crudes.

New prices posted that date were: Penna. grade oil in New York and National Transit lines (Bradford-Alleghany) run prior to July 1, $3.00; same grade run July 1 and after, $3.05; Penna. grade oil in National Transit lines (Other Penna.) run prior to July 1, $3.00; same grade run July 1 and after, $3.05; Penna. grade oil in Southwest Penna. lines (Other Penna.), $3.00; Penna. grade oil in Eureka lines (West Virginia), $2.90; Penna. grade oil in Buckeye lines (Macksburg, O. district), $2.70.

Last previous change in Pennsylvania crude was 25-cent reduction Aug. 16.

More Delays in Making Effective California's Gas Law

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, Oct. 1

WHILE operators at Santa Fe Springs continued to produce oil and gas in an unrestricted manner, operators at Ventura Avenue, Seal Beach, and Long Beach, the other critical fields in California, met with R. D. Bush, state oil and gas supervisor, to determine whether or not a reasonable waste of gas exists or is threatened in these fields.

Operators in the Ventura Avenue field will learn on Oct. 3 just what gas to oil ratio will be set on wells producing from that district of exceedingly high gas pressures, under the state's new gas conservation law.

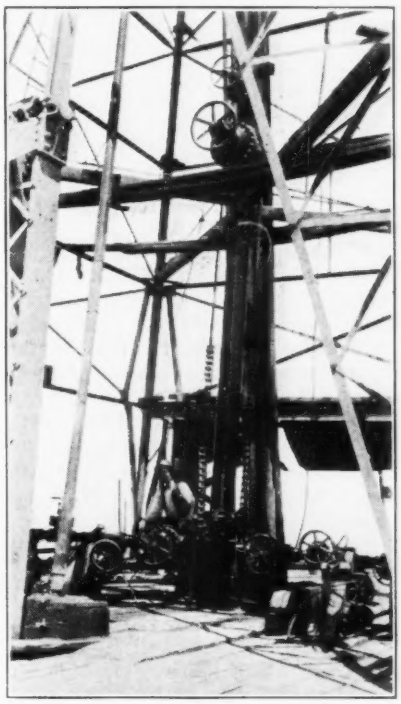
It is expected that a different ratio will have to be worked out for each of the different producing fields. It has even been stated that different oil-to-gas ratios would be worked out for individual wells depending upon their position on the structure and on the zone from which they are producing.

In the opinion of many operators the ratio of 2500 cubic feet of gas per barrel of oil set up for Santa Fe Springs would not be workable at Ventura Avenue. Such a ratio would permit the production of only 152 million cubic feet daily, whereas the daily average production for August was 254,219,000 cubic feet. To curtail the present flow of gas by 104 million cubic feet of gas, in the opinion of many engineers, would imperil many of the producing wells at Ventura Avenue because of the high gas pressures already carried on the casing head.

Operators at Ventura Avenue are expected to favor an oil-to-gas ratio of about 3000 cubic feet of gas per barrel of oil. This ratio would enable them to produce approximately 200 million cubic feet of gas and over 66,000 barrels of oil per day.

California's gas conservation law provides two distinct methods of attack on the part of state officials to enforce it. At Santa Fe Springs the injunction method was used; that is, when the decision of the supervisor had been reached that an unreasonable waste of gas occurred at Santa Fe Springs, proceedings were instituted in the name of the people of the state to enjoin unreasonable waste of gas.

These proceedings were instituted in the superior court of Los Angeles County, Sept. 20. Because of lack of time on the part of attorneys for an independent operator to study the law and the agreement made between seven major operators at Santa Fe Springs and approved by the supervisor, the hearing on the injunction was set over until Oct. 13.



Derrick floor of the Milham Exploration Co.'s Elliott 1 at Kettleman Hills. About 15 feet of casing is projecting from the hole

The second method of attack will be used at Ventura Avenue and probably at Long Beach and Seal Beach. At these fields hearings were before the state oil and gas supervisor on the unreasonable waste of gas there, after which the supervisor will issue an order directing that such unreasonable waste of gas be discontinued or refrained from to the extent stated in the order.

The lessor, lessee, or any party interested must within five days from the date of service of the order file an appeal with the supervisor stating that the order is not acceptable.

The order is then submitted to a board of commissioners for hearing, after which the commissioners shall affirm, set aside or modify the order. Within ten days after hearing the evidence the appealed order, with its modifications or affirmation, shall be served on the owner and supersedes all other orders.

In case no written decision is made by the board of commissioners within 30 days after date of notice the original order of the supervisor becomes effective. If the affirmed order is not obeyed within 10 days and the work of restraining the waste of gas is not under way and continued to completion, the supervisor shall appoint agents to perform the necessary work and any amount expended will constitute a lien against the property in question.

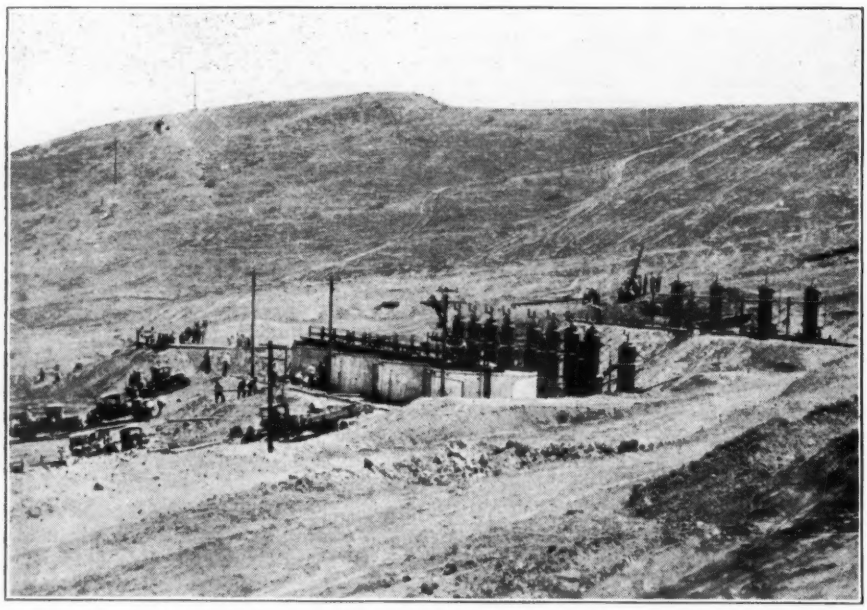
At the hearing before the supervisor at Ventura Avenue, W. C. McDuffie, president of the Pacific Western Oil Co., submitted a plan which would permit only the low gas producing wells to continue to produce. These wells would be beaned down so as to release only sufficient gas for the available outlets. It is estimated that a total of 120 million cubic feet of gas could be utilized from the Ventura field daily.

This plan would restrict the daily output of the Associated Oil Co. to 55 million cubic feet of gas and 21,000 barrels of oil and the daily output for the Shell Oil Co. to 45 million cubic feet of gas and 19,500 barrels of oil. Joseph Jensen, chief production engineer for the Associated, told the supervisor that he believed by careful development, oil could be taken from the ground without the loss of an appreciable amount of gas.

At a meeting of operators of the Long Beach and Seal Beach fields, Sept. 27, before State Oil and Gas Supervisor R. D. Bush, definite action was delayed to enable independent operators to study the tentative agreement drawn up by seven contributing major oil companies.

Judge E. D. Reiter, legal counsel for Miley Petroleum Corp. and chairman for a group of independent operators, asked that the hearing be set ahead until Oct. 7 to enable him and his associates to study the agreement.

Judge Reiter heads a gas conservation committee composed of many of the strongest independent oil companies in California. The members, in addition to the judge, are: Thomas Lipps, secretary, Twin Bell Syndicate;



Thirteen gas traps and four flow tanks for one well, the Standard Oil Co. of California's 81-11 *P at Kettleman Hills*

John McKeon, Italo Petroleum Corp.; J. R. Pemberton, Petroleum Securities; William C. McDuffie, Pacific Western Oil Co.; George Machris, Wilshire Oil Co.; and Herbert McMillan, McMillan Petroleum Co.

Some of the problems that will have to be ironed out between this committee of independent operators and the committee of major operators will involve the question of future gas contracts, and the question of wildcatting in unproven territory.

Under the proposed contract the seven major companies will contribute $230,000 annually to maintain the necessary funds for equipment to meet the needs of the gas law. At the same time they are the only ones to reap a revenue from the sales of the gas, provided the independent operator does not have an outlet for his gas, it is pointed out, and the association, made up of seven major engineers and seven independent engineers, will have an opportunity to enlarge its gas contracts, the profits of which would go to the companies contributing to the association.

James S. Bennett, legal counsel for the department of natural resources, at the meeting Sept. 27, stated he was in favor of postponing the hearing until Oct. 7 as long as such a continuance was not used as a basis for a continuance of the hearing now pending at Ventura Avenue and the hearing on the injunction at Santa Fe Springs, now set for Oct. 14.

He also stated that, although the law was signed May 25, no actual curtailment has been effected as yet. He stated that during this time, daily average waste of natural gas in California had amounted to nearly 600 million cubic feet. This amount of gas blowing into the air per day has amounted during the three months to over 60 billion cubic feet, he said. In terms of dollars this means, he said, that in the three months nearly $6,000,000 have been lost to the people of California and $10,000,000 to operators through the reduction of ultimate recovery of oil that might have been brought to the surface by the wasted gas. This latter figure is based on an oil-to-gas ratio of 3000 cubic feet per barrel of oil.

Mr. Bennett also said that he had brought to his attention by competent lawyers the fact that two different interpretations might be made of the law prohibiting the unreasonable waste of natural gas.

One of these was that, as long as no gas was blown into the air, an operator could have any oil-to-gas ratio he desired. The other viewpoint was that, if the oil-to-gas ratio prescribed by the supervisor was adhered to by the operators, the gas being used for its intended purpose of bringing oil to the surface could be allowed to escape into the air without being unreasonably wasted.

Mr. Bennett stated that the interpretation of the director of natural resources was that any gas being blown into the air irrespective of any oil-to-gas ratio whatsoever constituted unreasonable waste. That is, even though the operator was producing his oil with less gas per barrel than the allotted ratio, he could not permit any of this gas to escape into the air.

The above point is one that is very likely to prove a bone of contention between state and oil-company officials.

North Dome Kettleman Operators Sign Up

LOS ANGELES, Sept. 27.—What threatened to be a long drawn out controversy between the government and oil company officials ended with the signing, by officials of the Mexican Seaboard Oil Co., of the agreement to shut down a production in Kettleman Hills for a period of two years.

This brings into the agreement the three domes, or principal areas of potential production, in Kettleman Hills. The agreements for the middle, and then the south domes, were signed earlier. The agreement on the north dome involved disposition of the discovery well in the field.

Contractural obligations with the Pacific Gas and Electric Corp. for the natural gas and with The Texas Co. for the absorption gasoline from its well was one of the reasons given by Milham Exploration Co. officials for not entering into the agreement prior to this time The Milham Exploration Co. is a subsidiary of the Mexican Seaboard Oil Co.

It is now understood that, if the wells allowed to produce on the north dome under the agreement, reduce the pressure on the casing of the discovery well to such an extent that it is deemed safe to shut it in, then the natural gas will be delivered to the public utility from Milham's gas wells in the Buttonwillow field.

In the agreement it is provided that the three offset wells to the Milham Elliott 1, namely Marland (Continental) Oil Co.'s 12-8, Standard Oil Co.'s 11P-81 and 1P-8 be completed and placed on production in the zone from which the Elliott 1 is producing, in order to reduce the pressure on the Elliott 1.

Continental's well was recently completed for 7000 barrels of oil and in excess of 120 million cubic feet of natural gas per day. Standard's 11P-81 has been producing approximately 1000 barrels of oil and 20 million cubic feet of gas daily for the past month. Its 1B-8 is drilling below 6450 feet and will probably be completed within a few weeks.

The agreement also states that if at any time after these offset wells are placed on production, the pressure in the discovery well has been reduced so that it can be killed without hazard to life and property, an effort will be made to shut the well in. If this is successfully accomplished or for any reason the Elliott 1 ceases to produce, the three offset wells will also be reduced. In a statement reported to have been made by A. F. Hockenbeamer, president of the Pacific Gas and Electric Corp., it was said that notwithstanding the shutdown of Kettleman Hills announced by the Secretary of the Interior, his company did not anticipate any difficulty in securing all the natural gas necessary to supply needs of all communities along its present pipe line and those under construction and projected.

Doherty Plans Early Return to Business

NEW YORK, Sept. 26.—Henry L. Doherty in his first interview with New York newspaper men since December, 1926, announced he shortly would return to active business. He intends going to Europe soon to be present at the graduation of Mrs. Doherty's daughter from the University of Madrid in October and will "get into the harness again" as soon as he returns.

Mr. Doherty apparently had recovered from his illness of almost three years' duration but said he would take things easier than before he was forced to relinquish active management of his Cities Service interests.

He said he believed Congress had the power to provide for oil conservation because of the importance of oil to the armed forces of the United States.

Mr. Doherty said the California gas conservation law was a step, a half step he described it, toward an important goal.

"Personally, I don't think that it is framed properly to accomplish the most beneficial results," he said, "but I am watching its enforcement with tremendous interest, although it is probable that we won't be able to judge results for five or six months.

"I think that oil pools should be operated as a unit, no matter how diverse the ownership. Under the present method and laws one man is permitted to rob his neighbor. You drill a well and you drain the oil out from under the land on all sides. The only defense that the owner of the other land has is to drill first and steal your oil. I think that it is possible under the United States Constitution for Congress to enact a bill making it obligatory upon owners of oil land to operate the pool as a unit. Each land owner would share in the profits of the pool according to his acreage, and safeguards to protect adjoining lands could be contained in the bill by prohibiting a unit section from drilling too close to boundary lines of the pool until after adjoining lands had been organized as a unit."

WASHINGTON, Sept. 30.—Senator Warren of Wyoming has introduced a bill, S. 1752, for the relief of holders of gas and oil exploration permits, under the national leasing law who have not been able to comply with the law as it exists by providing for extension of outstanding permits or the reviving of permits that have lapsed. The extensions proposed will be in addition to those allowed under the extension amendments of 1922, 1926 and 1928.

An extension for two years may be granted for an additional two year period under the proposed law if the permittee has been unable, with the exercise of reasonable diligence, to begin drilling operations or to drill wells of the depth and within the time required by existing law, or has drilled wells of the depth and within the time required by existing law but has failed to discover oil or gas and desires to prosecute further exploration.

The bill also authorizes the Secretary of the Interior to make extensions for two years, subject to valid intervening rights, in the case of permits which have already expired because of a lack of authority under existing law, to make further extensions.

Valley Center Operators Agree To 50% Production Cut

By Telegraph

TULSA, Oct. 1

THE Valley Center pool just north of Wichita, Kansas, fell into line in the movement to effect a closer balance between market requirements and production when on Monday operators quickly reached an agreement to restrict production 50 per cent beginning October 5. The meeting held in Wichita was attended by all producers in the field and no dissenting opinion was voiced the vote being unanimous for the plan. Horace Fitzpatrick of the Prairie Oil and Gas Co., acted as chairman of the meeting.

The curtailment is for a 30-day period and the basis adopted was the average of production in the pool for the last 10 days in September. In round figures that amounted to 30,000 barrels daily and the pool will therefore be held to 15,000. Tom C. Johnson, independent operator was named umpire and advisory committee was appointed consisting of James Davis of the firm of Hazlett, Davis, Bradford and Frazier; W. F. Skaer of Hartman and Skaer, and Seth Herndon of the Bu-Vi-Bar Co. No restrictions were placed on drilling beyond an agreement to hold them to those required and to consult with the umpire before starting new ones.

While the amount of oil thus removed from the market is not great, the importance of the move is great as it is the first time in years that anything has been done in Kansas toward joining with other areas of the country in restrictive effort except for small pools in which one of two companies held back production. Notable among such arrangements is that which has prevailed for several months in the Greenwich pool of Sedgwick County where the Gypsy Oil Co. and the Shell Petroleum Corp., are limiting production of six Simpson sand wells to 100 barrels daily each.

Other areas of the Mid-Continent are now considered certain to be added to the list of restricted pools, which now numbers three. The committee appointed two weeks ago by the president of the Oklahoma-Kansas division of the Mid-Continent Oil and Gas Association will meet Oct. 2 to complete the report it will make to the executive committee of the association. It is understood that recommendations will be made that Mid-Continent production be held as closely to market requirements as possible and that some details of how it is to be effected will be presented when the executive committee meets. One suggestion, not finally adopted as yet, is that older areas go on a six day week basis.

The first day of proration in the east Earlsboro field saw the production brought down from around 50,000 barrels to 35,000. Some difficulty is experienced in striking the proper level of a 50 per cent proration as some of the wells were just being put on air lift when the order became effective. The company which came nearest to a 50 per cent cut the first day was the Magnolia Petroleum Co., which was the only one to object to the plan at the corporation commissions hearing last Friday.

Richfield Buys Control Of Tiona Refinery

CLEVELAND, Oct. 1.—Official announcement is expected shortly that the Richfield Oil Corp. of New York has bought a controlling interest in the Tiona Refining Co. which has a 1000-barrel refinery at Clarendon, Pa., near Warren. So Far Richfield officials in New York have not confirmed or denied published and oil trade reports of the sale of control by English interests to Richfield.

The Tiona refinery is a complete plant and specializes in 100 per cent Pennsylvania lubricating oils. One of its large customers is the Richfield Oil Co. of California, parent of the New York company, which holds a permit of the Pennsylvania Grade Crude Oil Association.

E. M. Lyons, president of the National Petroleum Association, is president of Tiona; C. A. Boler is vice-president, and W. A. Powell is secretary-treasurer. D. W. Walchli is refinery superintendent.

Review of Late Production News

CRUDE oil production in the U. S. decreased 24,100 barrels daily average to 2,900,400 barrels per day in the week ended Sept. 28 according to estimates of the American Petroleum Institute. In the previous week production dropped 40,900 barrels daily average bringing the total cut in output in the past two weeks to 65,000 barrels daily average.

East of the Rocky Mountains production fell 11,300 barrels daily average in the past week. The Oklahoma City field still was shut in and a 50 per cent cut in East Earlsboro production late in the week brought the average for that field down 4100 barrels daily average. Total Oklahoma production fell 9550 barrels daily average.

In California Santa Fe Springs output fell 20,000 barrels daily average but increases in other fields partially offset this. State production fell 12,800 barrels daily average.

Oklahoma-Kansas

THE Mid-Continent fields were featureless during the week. A substantial reduction in the daily output of Oklahoma has been effected by removing Oklahoma City from the producing list and beginning Sept. 28 the flush pool just east of the older Earlsboro field, went under the state corporation commission's order restricting output 50 per cent.

It is not likely that these will be the only fields affected by restrictive measures. Discussions were to begin in Wichita, Sept. 30, on curtailing production in the Wichita district and it is possible that other pools in Oklahoma will be the subject of corporation commission orders.

An apparent failure was marked up in the Oklahoma City pool, inside proven territory. Further drilling in the well, already the deepest in the field, will be necessary, however, before it is finally given up, as porosity conditions in the producing lime play an important part in accumulation.

California

ESTIMATED daily average production for California showed a substantial reduction for week ending Sept. 28 as compared with the total for the previous week.

Natural decline in the O'Connell zone at Santa Fe Springs accompanied by few completions in the deep zones accounted for the larger part of the decrease, which amounted to 18,000 barrels for the state, to give a total of 863,600 barrels.

It is expected that further completions in the Clarke and O'Connell sands at Santa Fe Springs will cause California average production to remain on a fairly even keel for some time although at the rate producers in the O'Connell zone are falling off in production the curve may soon take a downward trend.

Current production in this country by pools is found on page 121.

California's gas conservation law is causing considerable controversy among operators in the oil industry but as yet very little has actually been accomplished. "More time" seems to be the cry of operators, time in which to study the law and the agreement submitted by seven major companies.

Discovery of what may prove to be a fair sized high gravity oil field within 20 miles of the center of Los Angeles seems to be certain as wells at Potrero core oil sand. An extensive leasing campaign is under way in the area as operators fight for good locations.

The Texas Co. is thought to have penetrated a new oil sand at Santa Fe Springs at 8500 feet underlying the 3rd Clarke sand.

Wyoming, Montana

THE E. B. Coolidge interests of Montana have started interesting wildcat wells this month; one is on the Crooked Creek structure, north of Billings, and is an attempt to develop a gas supply in that part of Montana, and one is in Garfield county, central Montana, which will be a deep test of the Freedom Dome, 70 miles east of the Cat Creek field. The Prairie Oil & Gas Co. has entered Montana and will drill a deep test of the Porcupine Dome, lying mostly in Rosebud county, Montana.

Argo Oil Co. will complete the test started by the Highline Oil Co. on a wildcat structure in Mesa county, Colorado.

Another test on the Cane Creek dome in southeastern Utah is to be drilled by the B. O. Jones interests who held the original contracts on the Colorado river structures which were subsequently tested by the Midwest Refining Co. and associated companies.

Southeastern New Mexico is the most active region in the Rocky Mountain district at present. There are more than 35 wells drilling in Lea county alone, and locations for six new tests are recently announced.

Texas, New Mexico, Louisiana

TWO significant wildcat operations, almost across the state from each other in Texas, will be watched carefully when production tests are made in the next week or ten days.

They are the No. 1 White-Herscherson test of G. L. Folbre and Lee O. White, in sec. 5, block 51, Reeves county, West Texas; and the Pure Oil Co.'s No. 1 W. T. Jarman, southeast corner of Sec. 2 Nacogdoches County School land, 12 miles south of Grand Saline, Van Zandt County, East Texas.

The Folbre-White-Herscherson test, northwest of Fort Stockton, went out of salt formation at 3230 feet and made gas through a hole full of sulfur water the drill was carrying at 3238 feet. It was also reported showing globules of oil on the water. Two miles east of this test the Dixie Oil Co.'s Herscherson, several years ago, bottomed salt at 3825 feet and had oil shows to depths below 4000 feet. The Dixie test was later abandoned below 5300 feet.

Pure Oil Co.'s Jarman test was shut down after coring saturated sand, believed to be Woodbine, at 2656-2661 feet and cementing 9¼-inch casing at 2587 feet. Leaseholds in the area are controlled 95 per cent by the Pure, which has a block of about 14,000 acres. The remainder of the acreage is held by the Sun, Humble, Texas and Shell companies.

U. S. 1929 Output Over Billion Barrels, Tenth Larger Than 1928

By Valentin R. Garfias

THE preliminary figures at present available indicate the world's petroleum production in 1929 will be close to 1,467,000,000 barrels, which is an increase of about 145,000,000 over 1928, as compared with an increase of 61,000,000 barrels in the previous year.

The production has increased on an average close to 100,000,000 barrels yearly in the last four years, from about 1,067,000,000 in 1925.

During the present year a more definite policy of conservation has been seriously considered by the foremost executives of the companies controlling the bulk of domestic and foreign production and the United States government has taken an active interest in the development of this program. Definite steps have already been taken and the industry is gradually establishing a foundation for closer and more intelligent cooperation.

Among other salient constructive steps may be mentioned the establishing of tentative agreements of unification in the price of oil products exported from the United States, the putting into effect of a gas conservation law in California, the marked tendency towards consolidations of the various branches of the industry into larger units and the placing on a commercial scale of the refining experiment commonly known as the hydrogenation process.

ESTIMATES as to world oil production for the current year by Mr. Garfias are looked forward to annually by students of the oil industry. His estimate of 1928 production was only 3 per cent off from the official figures of the U. S. Bureau of Mines, which are not received until months after the close of the year.

As last year, Mr. Garfias' statement is released exclusively through NATIONAL PETROLEUM NEWS.

The publication of the draft of the proposed petroleum law in Colombia and of the Mexican Labor Law have on the other hand created apprehension and uncertainty. It is confidently expected, however, that these preliminary drafts will be materially modified before the laws are promulgated, or otherwise they may destroy the interest they are intended to protect.

United States:—Production in the United States, which remained stationary during 1927 and 1928, should increase in 1929 about 109,000,000 barrels or 12 per cent. This increase is due primarily to deeper drilling in the California fields and to the discovery of new pools in Texas and Oklahoma.

The progress of the conservation program was marked by the action of the government in stopping further permits to drill on government lands; by putting into effect early in September the California Gas Conservation Law and by the Kettleman Hills, Oklahoma City and West Texas conservation agreements. Crude stocks should increase about 60,000,000 barrels during 1929 compared with an increase of 17,000,000 the previous year. The average shut-in production is estimated to be from 10 to 15 per cent of the total.

Venezuela:—The 1929 production of the Venezuelan fields is estimated at

World Petroleum Production for 1929

(In Thousands of Barrels)

	1929	1928	1927
United States	1,010,000	901,474	901,129
Venezuela	135,000	106,000	63,134
Russia	95,500	87,800	77,018
Persia	43,000	42,080	39,688
Mexico	42,000	50,150	64,121
Roumania	32,500	30,600	26,368
Dutch East Indies	30,000	28,500	25,967
Colombia	20,400	19,900	15,002
Peru	13,000	11,970	10,135
Argentina	9,000	9,100	8,630
India	8,500	8,300	7,878
Trinidad	8,200	7,750	5,712
Sarawak	5,600	5,290	4,943
Poland	5,200	5,530	5,342
Egypt	1,900	1,840	1,267
Japan	1,800	1,800	1,700
Ecuador	1,300	1,090	537
Canada	1,000	618	477
Sakhalin	880	509	440
Iraq	850	650	200
Germany		683	663
France		520	504
Czechoslovakia	1,370	150	149
Italy		43	44
Others		23	25
	1,467,000	1,322,370	1,261,073

Valentin R. Garfias
Manager foreign oil department, Henry L. Doherty & Co.

135,000,000 barrels, showing an increase of 29,000,000 or 25.5 per cent over 1928. The output has been to some extent regulated by mutual conservation agreements between the leading producers. Other important developments are the completion of a refinery in the island of Aruba and the probable bringing into the Maracaibo market, by the end of the year, of the higher grade oil from the Colon District.

Russia:—Production in Russia has kept its steady increase and is estimated at 95,500,000 barrels, representing 6.5 per cent of the world output—a percentage which the country has maintained for the last three years.

Persia:—With a production of 43,000,000 barrels during 1929, Persia should displace Mexico as fourth in rank. Areas to the north and south of Mesdjid-i-Suleiman, the main producing field, have recently been proven and although no production is obtained from these areas, it is reported that the shut in production from these and other regions is in excess of the present yield.

Mexico:—Contrary to the general upward trend in every important producing country, Mexico again registers a decline in output. This steady decline started in 1921 and has continued to date. The 1929 production is estimated at 42,000,000 barrels or 8,000,000 barrels less than 1928. The country should produce this year less than Persia and, should the downward course continue, Roumania and possibly Dutch East Indies would outrank Mexico during 1930. The outstanding event besides the speedy suppression of the revolution which started in March, has been the publication of the draft of a new labor law. Some of the provisions of this law have caused widespread apprehension in some quarters.

Roumania:—Production in Roumania has increased steadily during the last 10 years and should reach an estimated figure of over 32,000,000 barrels in 1929. A more liberal petroleum law has been promulgated, bringing about a wider foreign interest in the Roumanian fields than heretofore.

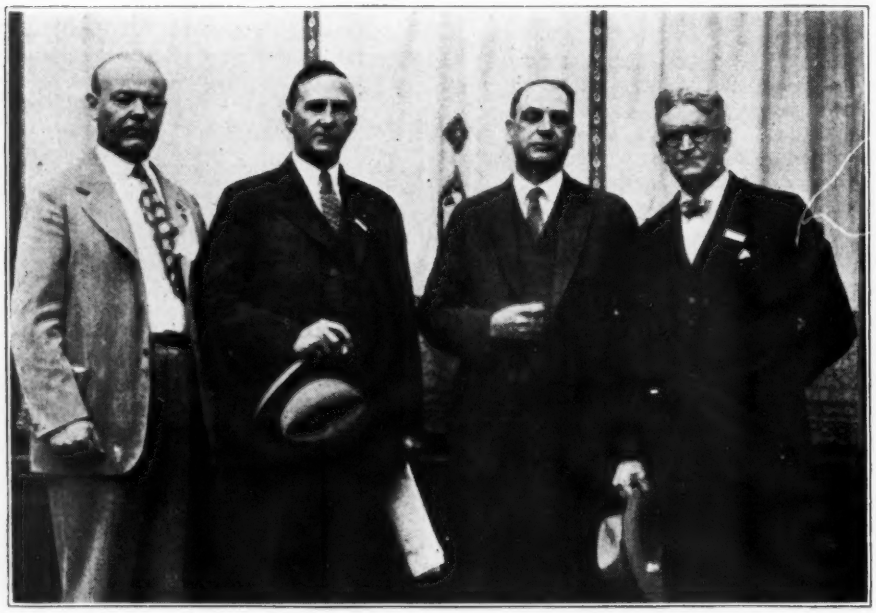
Colombia:—Production in Colombia has been maintained to the capacity of the existing pipe lines, about 20,000,000 barrels, with no marked change from 1928. The outline of the new petroleum law was recently published and has caused widespread disappointment, since it is realized that, if the law becomes effective in its present form, it will serve to postpone indefinitely major operations by bonafide operators.

Peru:—The production of Peru shows a gradual increase and totals nearly 13,000,000 barrels, or 1,000,000 over the preceding year.

Of the countries listed as minor producers, Ecuador, Iraq, Canada and Sakhalin showed important developments. The Iraq production, owing to its geographic position, represents an important potential source for the future.

Plan Four States Convention Program

KANSAS CITY, Sept. 27.—Secretaries of the four state associations and Roy Reed, president of the Kansas City Oil Men's club, are in charge of the Big Four State Jobbers convention in Kansas City, Oct. 15-17. Speakers will address the convention on the marketing code of ethics, and high compression gasoline. Oil men in Missouri, Kansas, Nebraska and Iowa are invited to the convention.



Secretaries of associations comprising the Four States convention. Charles Sutherland, Nebraska Oil Men's Association; John Motter, Kansas Oil Men's Association; Mel Long, Iowa Petroleum Association; and Geo. Allee, president and secretary Missouri Oil Men's Association

Form Committees to Draft Specifications

CLEVELAND, Sept. 27.—Technical committees are being organized by Committee D-2 of the American Society for Testing Materials to develop specifications for various petroleum products as a means of standardizing quality and simplifying the manufacture, buying and selling of such products.

This is another step in the plan of the committee to write specifications in order to reduce confusion and misunderstanding between buyer and seller to a minimum. Up to now Committee D-2 has limited its work to developing methods of testing petroleum products without formulating any specifications.

Three technical committees are now organizing, according to a statement sent out from A. S. T. M. headquarters in Philadelphia, as follows:

A. Gasoline

H. L. Horning, president Waukesha Motor Co., Waukesha, Wis., chairman.

T. G. Delbridge, process supervisor, Atlantic Refining Co., Philadelphia, secretary.

B. Motor Oils

H. C. Mougey, chief chemist, General Motors Research Corp., Detroit, chairman.

J. G. Detwiler, chemist, The Texas Co., secretary.

C. Fuel Oils (Including Diesel Fuel)

H. G. Dinger, Captain U. S. N. engineering experiment station, chairman.

A. E. Flowers, engineer in charge of development, De Laval Separator Co., vice chairman.

A. Ludlow Clayden, research engineer, the Sun Oil Co., secretary.

It is stated that every attempt will be made to obtain adequate representation from all interested groups.

The report of the committee's activities further states that at present there are 21 standard methods and 15 tentative methods under the jurisdiction of the committee.

NEW YORK, Sept. 28.—Richfield Oil Co. of New York has bought the Heath Oil Co. of Binghamton, N. Y., which has a bulk plant and chain of service stations in that city.

Girvin Area of Pecos County Now Hottest Spot in West Texas

By Paul Wagner
N. P. N. STAFF WRITER

McCAMEY, Texas, Sept. 27 THE busiest spot now in West Texas lies 18 miles airline, or 25 miles by winding roads, beyond the Yates field of Pecos county into the wilderness.

It is the Girvin area, marked by the Rowan & Tong discovery well on the McDonald tract in sec. 46, H&GN block 12, on the north; and the earlier Taylor-Link development in the Block 16 district, five miles south of the Rowan & Tong.

In all, about 45 operations are under way in the two areas. With two or three exceptions, which include tests to be drilled by the Shell and California companies, all the wells are being put down with National machines, Fort Worth spudders and similar outfits.

Including contract drilling costs at $6 a foot, casing and transportation, it will average $17.000 to complete the 1600-foot wells of the general area.

Production in the Girvin area is nominal, amounting to about 1000 barrels daily in the Taylor-Link (University) district and perhaps 500 barrels daily possible to exploit from the Rowan & Tong discovery to the north.

References to development in this discussion will recognize the Rowan & Tong well and the Taylor-Link development as representing related but separate fields in a general district.

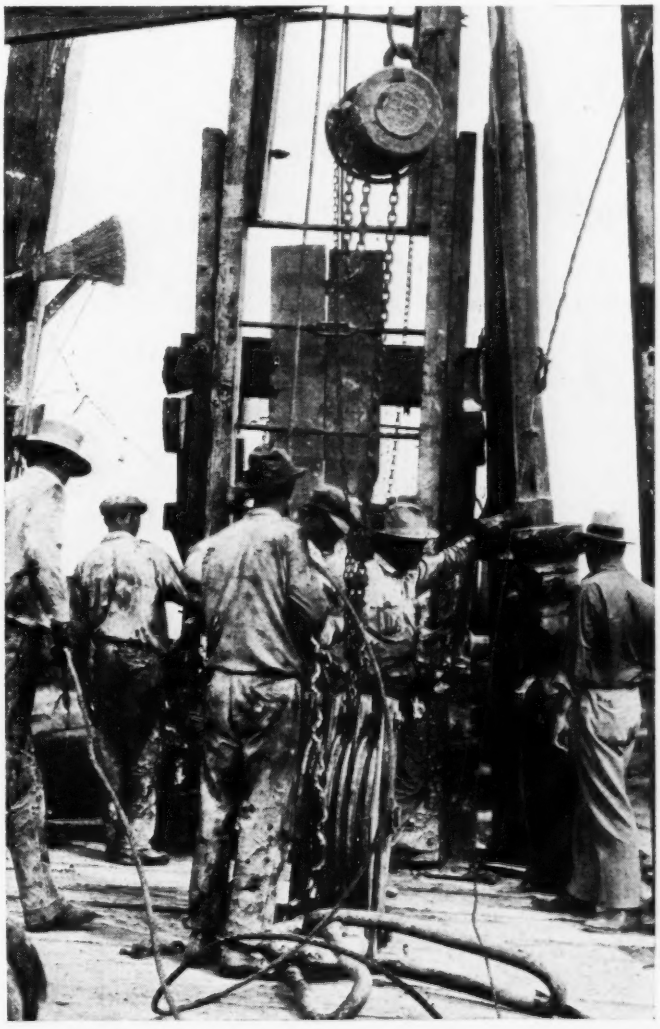
The Taylor-Link wells, so-called after the oil company which drilled the first of a group of a half dozen completions, are on a sub-surface structure plunging off the Fort Stockton "high."

Operators seeking to define the relation of the Rowan & Tong discovery to future development in that part of the district are "playing" acreage to the west-northwest on an inferred structure, lower on the general "high" than the Taylor-Link wells and somewhat paralleling the structure on which they are located.

Too little is known of sub-surface conditions, in the absence of adequate surface geology, to attempt outlining the probable course to be taken by production in detail. As development goes ahead, data for sub-surface correlations will disclose information on which to more definitely separate the structural relations of the present so-called north end and south end developments.

The terms north end and south end, however, must be considered as representing strictly geographical divisions of the general district, as at present constituted, and should not be thought of as dealing with sub-surface structural descriptions.

In the south end, present production consists of 530 barrels daily from two wells of the Taylor-Link Oil Co.; 110 barrels from one well of the Landreth Production Co.; and 275 barrels from one well of the Shell Petroleum Corp. Other wells that have shown oil in the area are either in stages of completion or they are being drilled deeper from a horizon that shows some oil at 995 feet.



Rigging up on No. 2 McDonald test of Independent Oil & Gas Co. and Rowan & Long in Girvin district

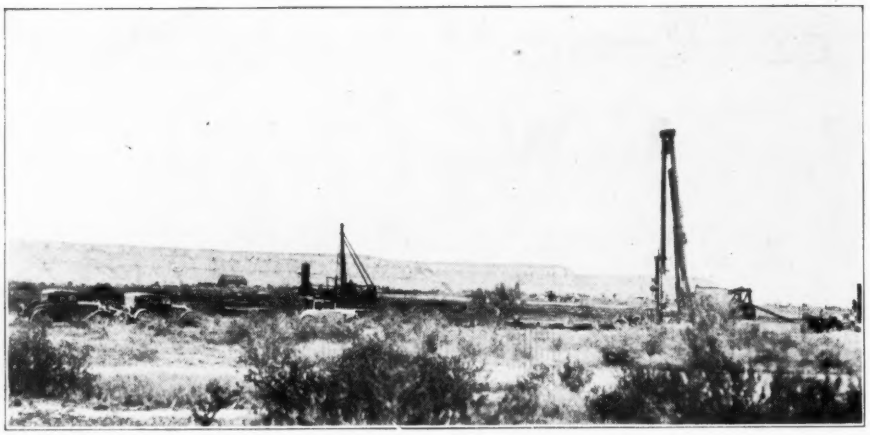
Current results include the testing of the Taylor-Link Oil Co.'s No. 3 University, diagonal southwest offset to the No. 1 discovery, and located in the northwest corner of sec. 31, block 16. At 1622 feet, total depth, in the lime pay topped at 1589 feet, the well tested 13 barrels of oil in one hour. Surface elevation is 2518 feet.

Southwest of the original Taylor-Link wells, in sec. 6, block 17, Continental Oil Co.'s A-1 University, swabbed 180 barrels in 24 hours, running swab every hour in six feet of pay at 996 feet.

In sec. 13, the No. 1 well of W. A. Moncrief, which was an indifferent completion of several weeks ago, has recently flowed between 25 and 30 barrels daily.

The Rowan & Tong discovery, in the north end area, now operated by Independent Oil & Gas Co., which paid $750,000 for a half interest in 550 acres of leaseholds and a smaller spread of royalty has been shut in most of the time for the last two or three weeks.

When opened for 12 hours, Sept. 26, it made 55 barrels the first hour, 60 barrels the second hour and averaged 30 barrels an hour for the



Rowan & Long-Independent discovery at left, No. 2 rigging up at right. Note escarpment in background

succeeding four hours.

Ed A. Landreth, president of the Landreth Production Co., Fort Worth, who has been one of the largest purchasers of acreage in the Girvin area, announced this week that construction would proceed immediately on a 17-mile screwed pipeline from the field to McCamey, Upton county, where Landreth purchased the old Marland (now Continental) Oil Co. tank car loading rack, in sec. 66 H&TC block 35.

National Supply Co. will install the Landreth pipe line and gathering system, and the Kirk Morrow Tank Co. (formerly United Iron Works) will build four 80,000-barrel tanks for Landreth in sec. 18, block 20, southeast of Taylor-Link production.

Landreth has announced 17 active operations in the field, ranging from drilling wells to locations.

Humble Pipeline Co., operating a short line to McCamey, is handling the present production of the field.

J. V. Rowan of San Antonio, one of the discoverers of the north end area in the Girvin district

Principal trading of leaseholds is in the Rowan & Tong area of the general district, as virtually all acreage in the Taylor-Link division had been taken up several years ago by the various operators. Some transfers, of course, were made in the south end area, including the purchase by Landreth of a half interest in 40 acres offsetting the Taylor-Link discovery from the World Oil Co., where present Landreth production is located.

An accompanying picture, taken from the site of the Landreth field camp, looking west, shows an unusual surface feature brought about by erosion. It is known as the "squaw's tit" and is located near the center of a 40 acre tract under lease by the Skelly Oil Co. The rig shown in the picture is on the No. 6 location of the Taylor-Link Oil Co.

"Squaw's Tit" and Taylor-Link No. 6 well from Landreth camp

S. O. Calif. May Buy Gas Distributor

LOS ANGELES, Sept. 27.—Although the rumor cannot be confirmed it is reported that a plan is under way whereby Standard Oil Co. of California will acquire control of the Pacific Public Service Co. and will later consolidate it with Western Natural Gas Co.

Pacific Public Service Co. holds as its principal asset the Coast Counties Gas and Electric Co., which distributes gas to 17 communities south of San Francisco, power and electric light to over 40 communities and some ice, cold storage and bottled water plants.

It is not thought that Standard is seeking a way to evade the shut in agreement at Kettleman Hills by providing itself with an outlet for natural gas from this field but is rather looking forward to the time when Kettleman Hills will be opened to further development.

At the end of two years, when competitive drilling is under way once more at Kettleman Hills, and if the California gas conservation law is enforced, oil companies will be obligated to find an outlet for their natural gas, which seems to be in such great abundance in this field.

As Standard owns in fee approximately one half, over 30,000 acres, of the known structure at Kettleman Hills, and will therefore probably be the largest producer, it behooves it to obtain a market that will enable maximum production.

Under the curtailment agreement among operators in the Kettleman Hills, Standard will be allowed to complete two of its 15 drilling wells. One of these was recently completed for 1000 barrels of oil and 20 million cubic feet of gas. The other well to be completed is the 1P-8, which is now drilling.

Significance of Butane Extraction In Gasoline Manufacturing

By J. E. Kobernik*

IN THE recent past it was generally thought that butane was not a constituent of natural gasoline or, if present, was present only in small amounts. Today, however, with the aid of fractional analysis it is definitely determined that butane can be present in large quantities and still make a gasoline of 90 per cent recovery.

This, on first glance, seems surprising considering that normal butane has a boiling point of about 32 F. and iso-butane, a boiling point of about 10 F.

The amount of butane allowable in propane free gasoline depends on two factors which are; first, the ratio between the pentanes and heavier constituents, and second, the ratio between the normal and iso-butane. These two factors admit of almost an unlimited number of combinations but it can be safely said that nearly all 90 per cent recovery natural gasoline with an end point of less than 305 F. will contain between 40 per cent and 50 per cent by volume of butanes, with an average of about 45 per cent.

It will be found that as the end point goes up, the percentage of butane allowable for any recovery will go down. Thus, a high end point in a natural gasoline means a net loss in production from the gas, as the end point of the gasoline in the gas is never over 320 F. and seldom exceeds 290 F. Therefore, any higher end point is due to topping the absorption oil.

Often the problem is complicated by the gravity specification imposed, and the amount of butane allowable in the finished product must be reduced.

From an inspection of the following table, it can be seen that the butanes and pentanes have gravities far higher than permitted in Grade A or Grade AA gasoline:

Hydrocarbon	B.P.	A.P.I. Gr.
Iso-Butane	10 F.	120.0
N-Butane	39.9 F.	112.0
Iso-Pentane	82.4 F.	94.9
N-Pentane	97.0 F.	92.4
Diso-Propyl	136.0 F.	81.0
Iso-Hexane	114.0 F.	.....
N-Hexane	156.0 F.	81.9
Iso-Heptane	194.0 F.	.....
N-Heptane	209.0 F.	74.5
N-Octane	258.0 F.	68.9
N-Nonane	301.0 F.	61.5

It is interesting to note that the higher the pentane content of a gasoline, the larger per cent of butane is allowable for a given recovery. This explains why such severe losses are often incurred in order to meet the gravity specifications, and why the recovery is so high when this specification is met.

With present analytical methods available to the industry, it would seem fairer to limit the percentage of butane rather than the gravity.

From the above, the importance of knowing the analysis of a gas before building a plant becomes very apparent. It can readily be seen that it would be useless to extract a high percentage of butane from a gas rich in butane, and very necessary to extract a high percentage of the butane from a gas with a relatively low butane content.

Examples of this might clear these statements up:

Constituent	Gal. per 1000 cu. ft. Gas No. 1	Gas No. 2
Iso-butane	.32	.48
N-butane	1.05	1.75
Pentanes & Heavier	1.10	1.10
Total	2.47	3.33

This table gives the analysis of two gases for the constituents we are interested in in this discussion. We will make the following assumption:—The pentane and heavier constituents are of such a nature that it is possible to produce a finished gasoline containing 45 per cent by volume of butanes. It will then be seen that the two gases will contain the same gasoline content, namely, 2.00 gallons per thousand cubic feet. Rejecting in gas No. 1, .47 gallons per thousand of butanes and in Gas No. 2, 1.33 gallons per thousand of butane or utilizing 66.7 per cent of the butane from gas No. 1 and 40.4 per cent of the butane from gas No. 2.

The amount of the butane removed from the gas can be regulated by plant design and plant operation. The higher the necessary butane recovery, the greater is the original and operating cost of a plant.

A plant designed to operate on Gas No. 2 recovering 40.4 per cent of the butanes, operating under the same conditions on Gas No. 1 would only recover 1.65 gallons per thousand, thereby losing .35 gallons per thousand. Likewise, a plant designed for Gas No. 1, if operated to recover 66.7 per cent of the butane from the gas, would still only produce 2.00 gallons per thousand net, but would entail an excessive operating cost for the results obtained.

It is interesting to note that a plant can be built that will recover practically 100 per cent of the pentanes and heavier and a relatively small percentage of the butanes. This explains why it is that altho the residue gas from plants shows only a small amount of gasoline loss per day, changes in plant equipment and operation show a substantial increase in extraction with the residue gas virtually testing the same.

A plant should, therefore, be designed and rated to extract substantially 100 per cent of the pentanes and heavier and a definite percentage of the butanes. The analysis of residue gas has no meaning in itself, except to show the presence or absence of pentanes and heavier.

Butane in residue gas is not commercial gasoline and any guarantee that no commercial gasoline is left in residue gas has no meaning unless the maximum amount of butane permissible has been extracted from the wet gas.

An analysis of the intake and residue gas or of the finished product will show whether the desired butane extraction has been obtained in the most economical manner.

*Vice president and manager, The Engineering, Research and Equipment Co.

Refinery Technologists Plan Tulsa Meeting

(By telegraph)

TULSA, Sept. 30.—The semi-annual meeting of refinery superintendents, chemists and technical men under auspices of the manufacturing committee of the Western Petroleum Refiners Association will be held in Tulsa at the Mayo Hotel, October 28-29. The program is as follows:

"Pressure Distillate Stabilization," by Col. George A. Burrell of Pittsburgh.

"Vapor Phase Cracking," by E. R. Wagner, Pure Oil Co., Chicago.

"Refinery Cost Accounting," by F. E. Holsten of Barnsdall Refineries, Inc., Tulsa.

"Analysis of Natural and Refinery Gasses," by W. J. Podbielniak of Tulsa.

"Control of Refinery Operations with Instruments," by F. M. Poole, Brown Instrument Co.

"Distillation," by Earl Petty, Smith Engineering Co.

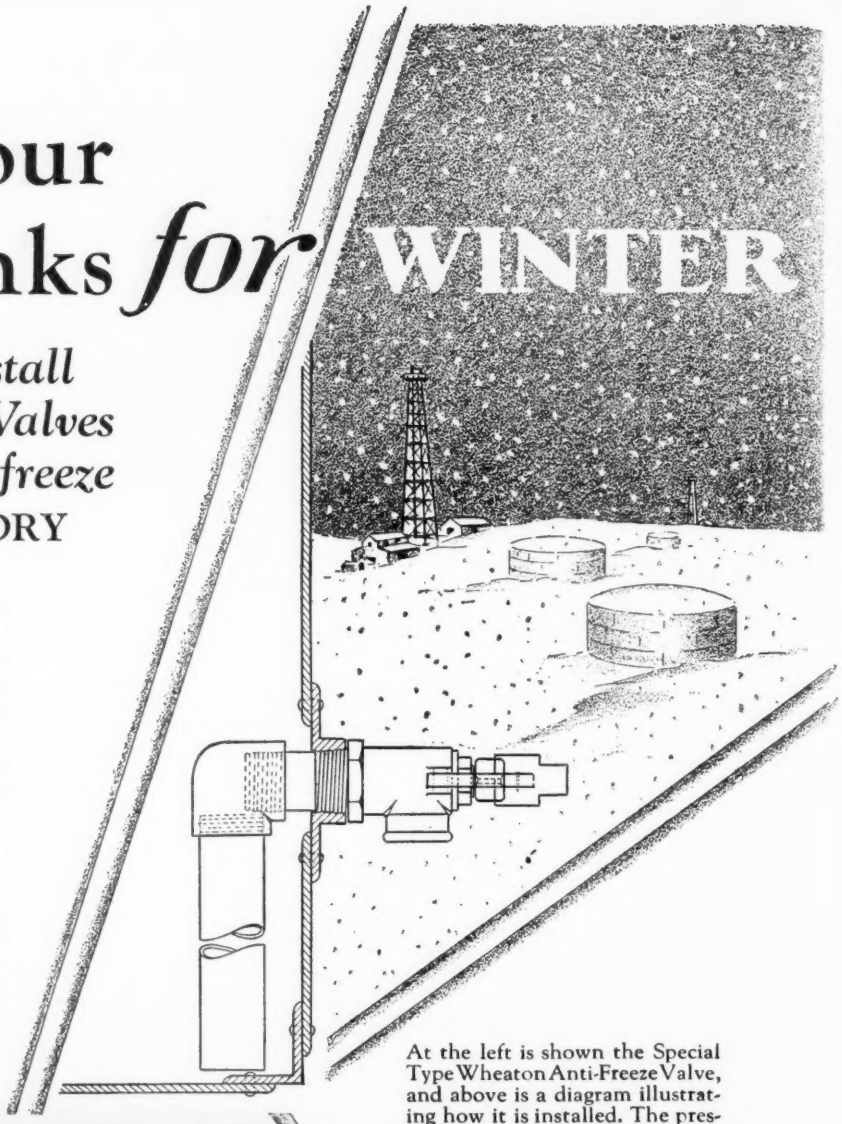
The meeting will include visits to several refineries in Tulsa and vicinity.

Lion Buys Into Stations

TULSA, Sept. 30.—The Lion Oil Refining Co. of El Dorado, Ark. has acquired a controlling interest in the Independent Oil Co., the Hackleburg Oil Co. and the Home Oil Co., all operating in Mississippi and Alabama, according to an announcement by Col. T. H. Barton, president of the Lion company.

Prepare your Storage Tanks *for* WINTER

Now is the time to install Wheaton Anti-Freeze Valves —the valves that CAN'T *freeze because they* DRAIN DRY

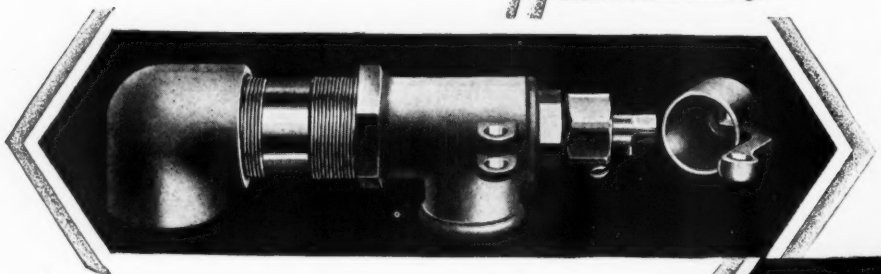


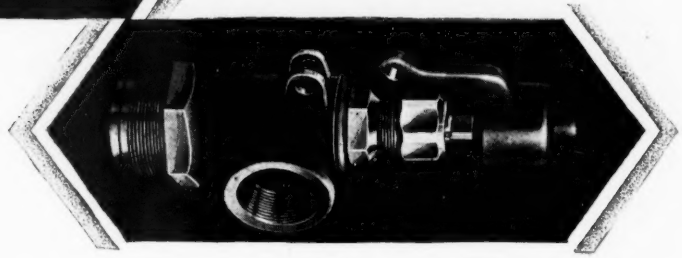
WITH Wheaton Anti-Freeze Valves, the valve seat is located *inside* the tank, while the valve body is located *outside* the tank. As a result, when the valve is closed, the water is *excluded* from the body, and the valve drains *dry*. Consequently, there is no danger of the valve freezing—and no danger of the valve breaking and causing leakage.

Many of the largest oil companies in the United States have installed Wheaton Anti-Freeze Valves. These companies have *removed all danger* of freezing, breakage and loss of product. Their tanks are prepared for winter. Are *yours?* If they are not, *now* is the time to equip your tanks with *Wheaton Anti-Freeze Valves.* Don't let winter find you unprepared. Send for a sample today, and give it your own test. If you are not entirely satisfied, you may return it for credit or refund.

A. W. WHEATON BRASS WORKS
Newark, New Jersey

At the left is shown the Special Type Wheaton Anti-Freeze Valve, and above is a diagram illustrating how it is installed. The pressure of the gasoline upon the water at the bottom of the tank forces the water up through the pipe and out through the valve. The Standard Type Wheaton Anti-Freeze Valve, shown below, is designed for installation through the bottom of the tank as well as through the wall.





Empire Brass Mfg. Co., Ltd., London, Ontario, Canadian Manufacturers and Distributors

Wheaton

FAUCETS · VALVES · JOINTS · COUPLINGS · FILLERS · NOZZLES · FITTINGS

IT WILL be remembered that early in the current year the Mid-Continent Oil & Gas Association interested itself in the unit development idea. Its president, William N. Davis, of Bartlesville, worked quite diligently and with considerable result. Some meetings were held and Mr. Davis made public a letter that he had written to the land department executives of the Phillips Petroleum Co., of which he is a vice-president, suggesting that purchases of wildcat acreage, as a general policy, be confined to areas where arrangements had been made for the exploration and development, in the event production was found, of the acreage block as a unit.

If memory is not wrong, some 25 of the larger companies informed Mr. Davis that they were in accord with the plan and that they would be much interested in helping to set up as definitely as possible a code for the guidance of land departments. Then along came the Houston meeting of the American Petroleum Institute and the ill-starred Hoover gathering in Colorado Springs. The air was filled with conservation talk, much of it confused and confusing. The unit development idea was shelved. Mr. Davis, in bad health, went away to rest.

Back in Bartlesville, once again in good physical condition, he is ready to lend his assistance in pushing the unit plan. He was asked to do so in a resolution adopted by the executive committee of the Kansas-Oklahoma division of the association a few days before Mr. Davis returned.

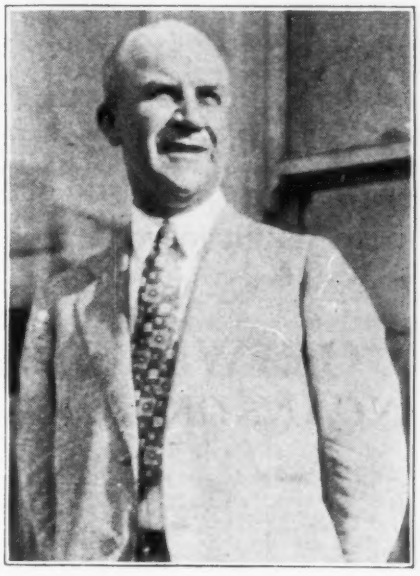
"I regard this," Mr. Davis told this writer, "as the outstanding conservation plan now before the industry. Recently established restrictions on the Oklahoma City pool and the plan to curtail the Earlsboro district are praiseworthy. They are emergency measures, though. The root of the trouble is the competitive system of development. Unitization of acreage prior to discovery would enable the operators to develop in an orderly manner in response to the demand for products."

Mr. Davis believes that the time is now here when the plan should be advanced in a national way and he is suggesting that the directors of the American Petroleum Institute give it consideration in their meeting October 4 in Tulsa. With the correctness of his view there can be no argument. The Mid-Continent association is limited in the matter in two ways.

It fails to cover all the oil producing states and, more important, many of its members are not final authority as to the broad policies of the companies they represent. The ultimate source of decision in all of the companies whose sanction is required to make the unit plan a success is found in the American Petroleum Institute.

* * *

Man's well known inhumanity to man was never more cruelly displayed than in a recent bit of horseplay in Tulsa. A local newspaper had published on Sunday a photograph of a company executive, with appropriate comment concerning his life and achievements. The following morning another executive of the same company called the one who had been publicized on the telephone and in a disguised voice said he was the editor of the daily newspaper and wanted to know how the picture went over. The reply was quite enthusiastic whereupon the kidder asked how many extra copies of the paper were required. A goodly sized order was placed. The one who ordered the papers is still trying to forget the incident.



Louis Campbell, Magnolia Petroleum Co.

* * *

It seems that newspaper men never recover fully from the malady whose cause is an early exposure to printer's ink. Here's H. H. (Scotty) Taylor, coasting along for the past 15 years, making money in the oil business and successfully concealing his journalistic origin. Now, all of a sudden, he hauls off and starts a new daily paper in Fayetteville, Ark., which town once knew him as a youthful reporter.

He will begin publication Nov. 1 and while he will entrust the heavy editorial work to others, he will spend part of his time in Fayetteville, maintaining his residence in Tulsa. Scotty will continue to keep a weather eye on the oil business, trying to detect hot plays in advance and getting a foothold therein. He played a part in the Seminole field, drilling a gas well in what turned out to be the rich part of the original Seminole pool.

When the oil play opened up he was still in one of the best leases in the field. Besides oil, he owns a radio company and a tire company in Tulsa and believes in keeping his interests diversified.

* * *

T. G. Madgwick, chief petroleum engineer, Canadian department of the interior, has been studying gas control methods in Oklahoma pools. A joint dominion and provincial commission to regulate the gas production in the Turner Valley field, near Calgary, is in the process of being set up and Mr. Madgwick is getting ready to make definite proposals on what should be done. The Canadian chief engineer is best known as a technologist of several years experience in Russian and Roumanian fields.

* * *

Louis Campbell, who heads the land department activities of the Magnolia Petroleum Co. in Oklahoma, has been made a director of the Liberty National Bank, Oklahoma City. Magnolia's Oklahoma offices are in the capital city.

* * *

Tulsa's union station, as we write, is still an insoluble problem. Leading minds grapple with it almost con-

"Stradivarius" says the mark on the violin, and no true musician need be told any more.

"Cementing by Halliburton," say the specifications, and every true oil man knows that the job will be done by the most highly trained cementing organization and with the most advanced cementing equipment in existence. Only the best is economical when so great an investment is involved.

HALLIBURTON OIL WELL CEMENTING CO.
DUNCAN, OKLAHOMA

stantly, according to the newspapers, but it remains in the same nebulous status as that other great question, how to make the Arkansas River navigable without water. Just to make the station affair more intricate the corporation commission dealt itself a hand recently and began withholding approval of the whole project. That makes two classes of objectors, the railroads being the other. Apparently only the city of Tulsa wants a station.

* * *

Eugene B. Marlow, vice-president of the Sinclair Crude Oil Purchasing Co., has been spending a few days at the old home town, Sullivan, Ind.

* * *

State geologists, who have an association all their own, will gather in Ardmore, Okla., Oct. 3 for their annual field conference. Field studies of the Arbuckle mountains and their effect on oil field structures in south Oklahoma and northern Texas will occupy the visitors for two days and the Seminole fields will be visited Oct. 7. One day will be spent at the International Petroleum Exposition. C. W. Tomlinson, Ardmore geologist, will lead the party through the Ardmore district.

* * *

R. R. Brandenthaler and W. S. Morris, of the Bartlesville station, U. S. Bureau of Mines, have returned from a trip through the principal gas districts of the Rocky Mountain states where they gauged, in accordance with the new method recently adopted, some 90 wells in the region and introduced the method. The work taking them into the Baker-Glendive area of southeastern Montana, "Brandy" had an opportunity to stop off and see his ranch, which is near Terry, in Prairie county, along the Powder River.

It may sound a bit incongruous, this mixing of petroleum engineering and ranching, as engineers are supposed to go around deeply immersed in formulae to the exclusion of sordid things like making money. Ah, says someone in the back row, ranching doesn't mean making money. Yes, but it does the way Mr. Brandenthaler does it.

The ranch is really a farm and by using tractors and plowing deep, it goes along year after year, the owner not worrying whether the government relieves the farmer or not. A brother runs another big wheat farm in the region and is able to keep a watchful eye on what the boys are doing on "Brandy's" premises.

* * *

Every few minutes a new hotel pops up in Tulsa, ground being broken one day and a 25 cent extra charge for meals served in the rooms being exacted the next. The professional worriers wag doleful heads and wonder what the taverns will be used for. Apparently they are doing plenty of business, for announcement is made that the Mincks, completed about a year ago, is to be doubled in capacity.

"Jimmie" Hughes, Tulsa district manager for the White Eagle Oil & Refining Co., producing department, doing a little meditating at a recent Osage Lease sale

* * *

Ted Washabaugh, who battled unsuccessfully with a fishing job in his No. 1 Voshel well, McPherson county, Kans., gave up the contest with a perverse fate a few days ago and sold his half of 80 acres to W. C. McBride, Inc., of St. Louis. The consideration was reported to be $50,000.

The McBride interests, who operate in Oklahoma as the Silurian Oil Co., have started a new well near the one which was such a collector of fishing tools, bits, stems and collapsed pipe, the new one being in the same section, 9-21S-3W. Washabaugh's well, which was a wildcat, would have made around 500 barrels if hard luck hadn't descended so completely.

It is supposed to have found its oil in the Simpson formation, which gave it a higher rating than if it had produced from the temperamental chat formation with which McPherson county has been richly endowed.

* * *

B. F. Esline, president of the Esline Co., Oconomowoc, Wis., is in Tulsa getting a first hand impression of the field and refinery divisions of the oil industry. His company is a manufacturer of steel buildings for all purposes, including airplane hangars.

* * *

Reading Iron Co. has taken up offices in the Exchange National Bank Building, moving from the Hunt Building. N. R. Putnam, district manager, says that A. M. Cullum, manager of oil industry sales, is expected to spend considerable time in the southwestern territory this fall.

Otto Bradford has been appointed field umpire in the Oklahoma City pool, the state corporation commission making the appointment after operators had made the selection. Mr. Bradford has had plenty of field experience. He started in the Ardmore district in 1913, going through the Healdton, Burkburnett and Hewitt booms and participating in the development of minor fields of southern Oklahoma. He joined the Wirt Franklin Petroleum Corp. and Cromwell-Franklin Oil Co. joint organization in Oklahoma City several months ago.

The duties of an umpire in the field right now are simple, as the field is 100 per cent shut in as to production. There will be plenty for him to do after the 30-day shut-in is ended, Oct. 12. The plan in effect there provides that all drilling wells must take a 30-day delay in completion and with about 200 of them going there will be a vast amount of detail for the umpire to handle, just to make certain that everybody agrees on the dates.

* * *

Three Dallas office employes of the Magnolia Petroleum Co., Charles W. Knight, Owen Reese and W. W. Ward, have joined the Pan-American Oil & Transport Co. for work in Venezuela.

* * *

The Osage tribal council, meeting the day after the Sept. 20 auction of oil leases on tribal lands, rejected Continental Oil Co.'s bid of $37,000 for a quarter section tract in the so-called naval reserve pool near Fairfax, agreeing with U. S. G. S. Geologist Roundy, who told them the lease was worth $40,000. The term "Indian giver" seems to fit cases such as this. After advertising the lands to be leased to the highest bidder, getting busy oil men to spend a day at Pawhuska, wheedling from them the last cent they are willing to pay, the proposition is withdrawn because it wasn't $3000 more.

The government geologists' idea of the value was purely arbitrary; the Continental knew from the way the tract fitted into its plan of operations what it was worth to them. A thing is worth, after all, what someone is willing to pay for it.

* * *

Ten Years Ago

(From National Petroleum News, Oct. 1, 1919)

California field and refinery workers granted minimum wage of $5 per day.

Federal Trade Commission busy filing complaints against oil companies in effort to stop lending of gasoline pumps to dealers.

Mid-Continent supply companies fight speculators in pipe and supplies who take advantage of shortage caused by strikes in steel mills.

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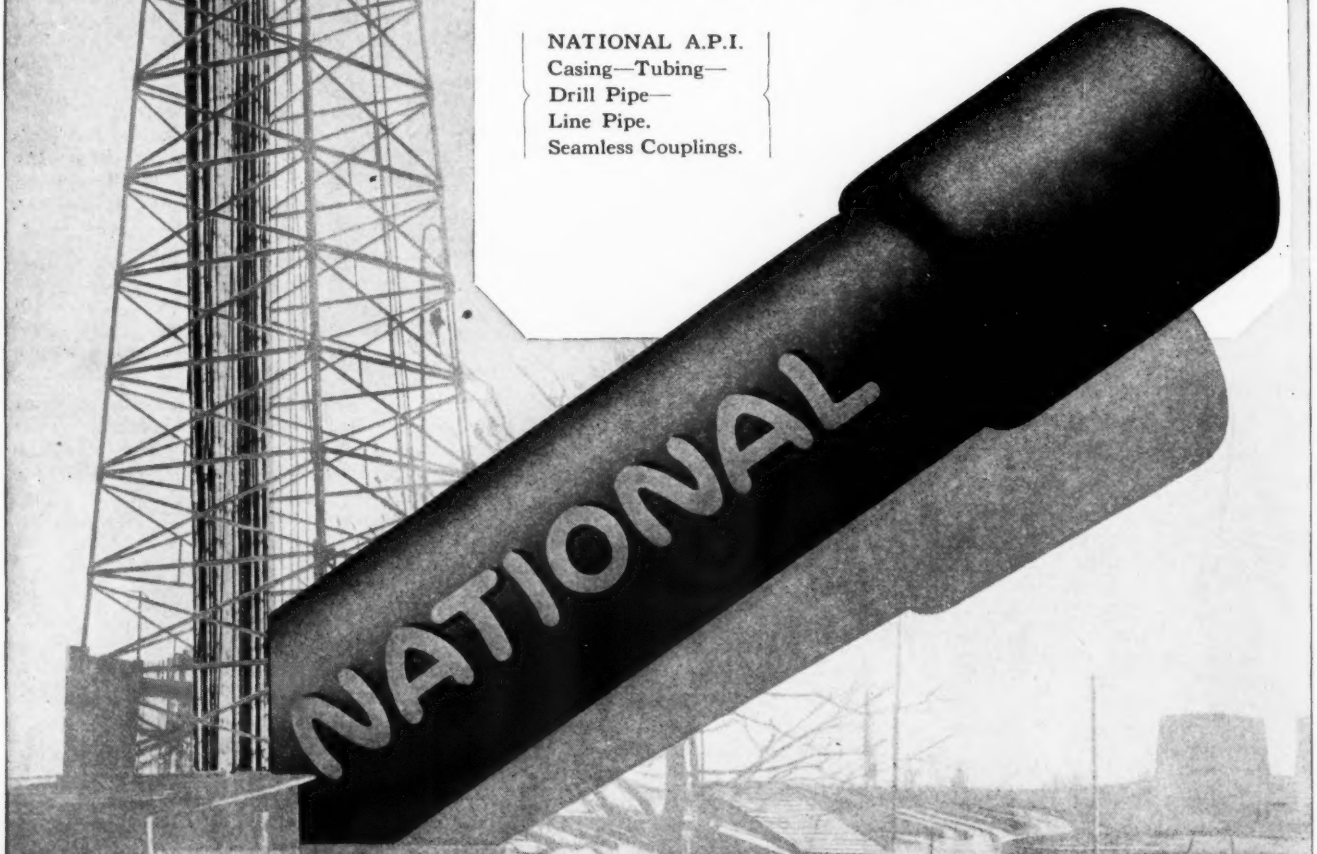

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Apparent Failure Is Drilled in Proven Area of Oklahoma City Pool

By Lawrence E. Smith
N. P. N. STAFF WRITER

TULSA, Sept. 28

PRIMARY interest in the Mid-Continent fields the past week was not in new sources of oil supply but in methods of restraining the output of those already under development. The Oklahoma City 30-day shutting in of production has been followed by curtailment of the flush area just east of the Earlsboro pool. That reduction, 50 per cent of the output of 29 producing wells, became effective at 7 a. m. Sept. 28.

Action along similar lines is planned for other flush areas of both Oklahoma and Kansas. Discussion on partially restricting Sedgwick county, Kans., pools was planned for Monday, Sept. 30, in Wichita.

Oklahoma City's status remained practically unchanged during the week with the exception of an apparent failure right in the middle of the field. The Indian Territory Illuminating Oil Co. and Foster Petroleum Co.'s No. 1 Foster, in the center NE SW of 24-11-3W, topped the big lime (Arbuckle-Siliceous) at 6348 feet and was drilled to 6593. It started bailing and made a flow of 425 barrels in 14 hours, 85 per cent of which was mud and water.

Immediately north of this on another 40-acre location is production, this being the Coline Oil Co.'s No. 1 Olds which is producing from a sand in the so-called detrital zone above the Siliceous lime. Diagonally offsetting the apparent failure is the No. 1 Fortson of the Mid-Kansas Oil & Gas Co. It also is on a 40-acre location.

The Fortson had its troubles several weeks ago, finally hitting a pay spot in the lime at 6536 feet. It is probably a little early to mark the I. T. I. O.-Foster well down as a failure, for it might yet hit production. While structure controls in a major sense in this field, porosity conditions in the lime play an important part.

Under terms of the corporation commission's order governing the field, wells which were making substantial amounts of water when the field was shut in Sept. 12 are permitted to open one day each week. Sinclair Oil & Gas Co.'s No. 1 Stamper was opened for 24 hours during the week and produced 4385 barrels of oil and around 5000 barrels of water, an increase in the amount of oil over what it made when shut in and about the same amount of water.

This is the second time it has been opened since the 100 per cent shutdown plan became effective. Three other wells, all belonging to the I. T. I. O.-Foster people, were making considerable water but these operators have not opened them for a test.

The discovery of the Mid-Kansas Oil & Gas Co. and Ramsey Petroleum Corp. of two weeks ago, in the NE NW of 19-12-1W, east of Oklahoma City, continues to produce at about the same rate it did a week ago. It varies from 325 to 350 barrels daily and makes around 25 barrels of water. This well produces from a horizon considerably above the Wilcox, which was tested and found barren of oil or gas.

No developments of outstanding importance were recorded in the east Earlsboro pool, the area which is being shut in 50 per cent in production. Magnolia Petroleum Co. drilled in its No. 9 A, Anderson, NW SE NE of 18-9-6, an "inside" well, but it had not been completed at the end of the week as it was to be shot and put on gas lift.

The pool has a low rock pressure, generally speaking, like much of the earlier Seminole district development and artificial flowing methods are required to get the oil. Amerada Petroleum Corp. completed its No. 2 Sullivan, NW SW NW of 17-9-6, for initial flow of 2615 barrels. It is a south offset to the sensational well of the Minnehoma Oil & Gas Co., which made nearly 9000 barrels at its maximum.

The flush pool known as East Little River, located in Twp. 7-7E, Seminole county, continues to yield good wells. Among late completions are the following:

Gypsy Oil Co. No. 6 Payne, NE SE NE of 5-7-7, Wilcox at 4238-44, swab and flow 1067 barrels; Continental Oil Co. No. 4 Harris, SW NW SW of 4-7-7, Wilcox 4154-77, swab and flow 1000 barrels. A late gauge of the field's output is as follows:

Company	Lease	Location	Wells	Production
Continental Oil	Shaffer	4-7-7	3	2,180
Gypsy Oil Co.	Payne	5-7-7	6	5,920
Gypsy Oil Co.	Walker	5-7-7	1	1,368
Mid-Continent Pet.	Smith	5-7-7	10	9,880
Prairie Oil & Gas	Lustey	5-7-7	1	off
Prairie Oil & Gas	Thomas	5-7-7	2	1,550
Prairie Oil & Gas	Carr	9-7-7	1	210
Sinclair O&G	Phillips	5-7-7	4	7,230
Texas Co.	Chilcoat	4-7-7	1	930
			29	29,268

Production in the Sasawka pool, southeastern Seminole county, climbed to 11,100 barrels in one 24-hour period late in the week. One of the best completions in the pool during the period under review was the Pure Oil Co.'s No. 3 Bates, in 13-6-7, which had sand at 4090 and at seven feet in was shot with 20 quarts. It produced 1000 barrels the next 24 hours.

Signal Oil Co.'s No. 3 Bond was deepened one foot and increased its flow from 45 to 65 barrels per hour. As of Sept. 27 the principal producers in the field were as follows: Sinclair Oil & Gas Co., five wells, 4030 barrels; Signal Oil Co., three wells, 3133 barrels; Pure Oil Co., one well, 1007 barrels; Prairie Oil & Gas Co., one well, 1245 barrels.

An extension of a quarter mile eastward was effected in the Maud pool. McMahon's No. 2 Roberts, NW NE SW of 9-8-5, Pottawatomie county, topped the Misener sand at 3998 feet and the Hunton lime at 4018 feet.

Production in this pool comes from the base of the Misener and the top of the Hunton, which are in contact. At total depth of 4028 feet the well flowed 627 barrels natural in 23 hours. Three offsets are starting to this well.

The rest of this western Seminole district was characterized by small wells and by failures.

Kansas supplied little news during the week. The only well over which anyone could get up the faintest bit of excitement was a producer in the chat formation in McPherson county. Shell Petroleum Corp.'s No. 2 Ritz, in the SE SE SW of 1-20S-2W, found its big pay at 2976-80 feet and flowed 1692 barrels in 15 hours. Its flow was pinched down for eight hours of that time, 200 pounds back pressure being maintained. The oil was cutting 5½ per cent water.

Notes on the Week

Prairie Oil & Gas Co. and others are getting very deep in their test northeast of Moore, northern Cleveland county, Okla., the test being four miles southeast of the Oklahoma City

pool. It is located in the center of the NE NE of 8-10-2W. Four and three-quarter-inch casing was set at 7135 feet and at total depth of 7175 feet drilling out of the cement plugs was suspended until master gate could be installed. Thus far nothing showed up which would indicate the need of a master gate, but the operators believe in being on the safe side. Viola lime was topped in this test at 6900 feet.

* * *

Water encroachment continues in the Transcontinental Oil Co.'s No. 2 Bolen, a sensational well in the Beebe pool, northern Pontotoc county. The well, in the NE SW NW of 19-5-5E, made 1697 barrels Sept. 25, cutting 30 per cent. It is producing from the Viola lime at 2282-89 feet. Its east offset, Empire Oil & Refining Co.'s No. 1 Norris, which had initial swabbing production of 1000 barrels a week earlier, fell to 50 barrels on the 25th and made 75 barrels of water.

* * *

Phillips Petroleum Co.'s No. 1 Judge Wilson, a wildcat in Sec. 157, Block 3-T, T. & N. O. Survey, Moore county, Texas Panhandle, is being plugged back from total depth of 3450 to a gas horizon higher up.

Gray county, Texas Panhandle, declined 7000 barrels in daily average production over the week. The total was 78,475 barrels from 454 wells and the previous week's production was 85,461 barrels. Total production in the Panhandle averaged 115,795 barrels over the week, a decline of 6894 barrels from the previous week. Gray county is expected to show a gain the coming week, as around 40 wells are to be drilled in Oct. 1 and shortly thereafter under the terms of a shutdown arrangement that has prevailed for the past month.

Earlsboro Curtails; Operators Seek Kansas Restriction

Staff Special
TULSA, Sept. 28

IF THE season of low consumption of oil products is accompanied by a glut of crude oil on the market it will not be the fault of Oklahoma operators. The second of two Oklahoma flush pools to have the hand of restraint laid upon it, the east Earlsboro pool, went upon a 50 per cent proration plan at 7 o'clock the morning of Sept. 28. The ensuing 24 hours were to be devoted to taking a gauge of all wells as a basis for shutting them in to half their capacity.

With Oklahoma City entirely shut in and this pool, producing more than 50,000 barrels daily, restricted to half its potential, operators began looking around to see what else should be held down in order to make the thing fair all around.

Accordingly, a meeting was planned for Monday, Sept. 30, in Wichita, Kans., to discuss the restricting of production in the flush Sedgwick county pools, chief of which is the Valley Center field. Total production in the county the past week averaged 37,300 barrels daily. It was expected that agreement on the subject might be somewhat more difficult than has been the case in the two Oklahoma pools now under restriction, owing to the fact that individual operators with wells of small daily production are operating in Sedgwick county. However, a try is being made and it is understood that the Bu-vi-bar Oil Co., Gypsy Oil Co. and Continental Oil Co., who jointly own the major part of the Valley Center pool production, favor restriction of 50 per cent in the field's output.

The Earlsboro curtailment order was signed by the state corporation commission Sept. 27, after hearing had been held. It follows the outline as published in NATIONAL PETROLEUM NEWS of Sept. 25, which issue also carried a map of the area. The curtailment in production is for 30 days and gauges are to be taken at one-week intervals. The full production on each of the 24-hour gauge days is to be made up by appropriate deduction from the total amount allowed.

Drilling wells are to be shut down at the final casing point and seven days allowed for cementing, then they are to wait an additional 15 days before drilling in. This applies to all the 70 wells now drilling and to any additional wells started prior to Jan. 1.

Ray M. Collins, who has served as umpire in each of the Seminole prorations in the past, was designated by the commission as the agent to enforce the order.

Magnolia Petroleum Co. was the only operator who appeared at the hearing in objection to the plan. This company pointed to the decline it has had on production in this district and suggested an alternative method. It favored imposing the restrictions on drilling wells when they reach the top of the sand and leaving the producing wells untouched.

Production in this pool for the 24 hours ended at 7 a.m. Sept. 28 is shown in the accompanying table.

The output was down from the figure at the end of the previous week by 5000 barrels. The potential being taken today for proration basis was expected to be higher as some of the wells, notably that of Burke-Greis Oil Co., were being put on air lift which would greatly increase their flow.

Company	Lease	Location	No. Wells	Production
Amerada	Sullivan	17-9-6	2	3970
Barnsdall	Noble	18-9-6	2	916
Burke-Greis	Fixico	17-9-6	1	1381
Carter	Green	19-9-6	1	7270
Gypsy	Noble	18-9-6	2	3225
Gypsy	Payne	18-9-6	6	9967
Magnolia	A. Anderson	18-9-6	8	6425
Magnolia	D. W. Anderson	18-9-6	2	3645
Minnehoma	Nice	17-9-6	1	4631
Prairie	Calkins	17-9-6	2	4675
Prairie	Paitman	18-9-6	3	3200
Prairie	Wisener	18-9-6	1	1315
	Total		31	50,620

Venezuelan Production Costs

WASHINGTON, Sept. 30.—As a part of the campaign to impose an import duty of $1 per barrel on crude oil Senator Pine of Oklahoma, has read into the congressional record a statement that production costs in Venezuela average only about 18 cents per barrel as compared with $1.70 to $2.25 in the United States.

He has shown also that transportation costs to the U. S. include 40 cents per barrel to deep water terminals at Maracaibo and 35 cents per barrel from Maracaibo to Atlantic ports.

Sunray Buys Production In Allen and Leases

TULSA, Sept. 28.—Sunray Oil Co., whose operating headquarters are in Tulsa, has bought for $1.000,000 producing lease in the Allen pool of Oklahoma, in 16-5-8E, with eight wells making 1200 barrels daily and some 5000 acres of undeveloped acreage in the Oklahoma City pool. The seller was the Anderson-Pritchard Oil Corp., of Oklahoma City, a substantial refining and marketing company which owns some production in various fields.

There is no production on the leases in the Oklahoma City area which are included in the deal and no drilling wells. The Allen pool property purchased is near other production owned by the Sunray.

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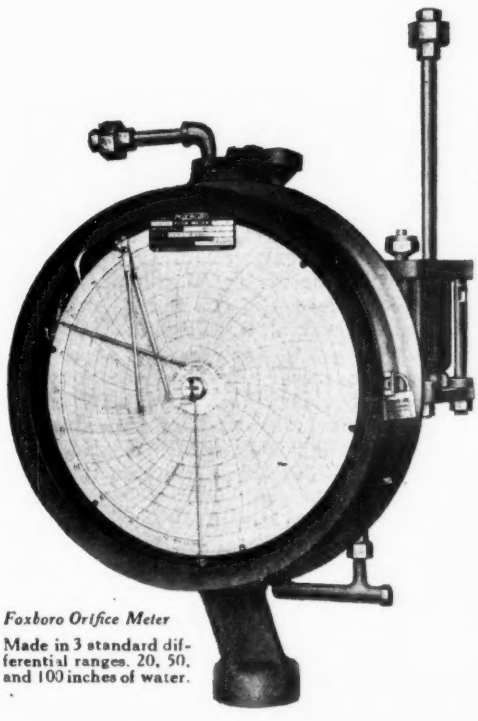

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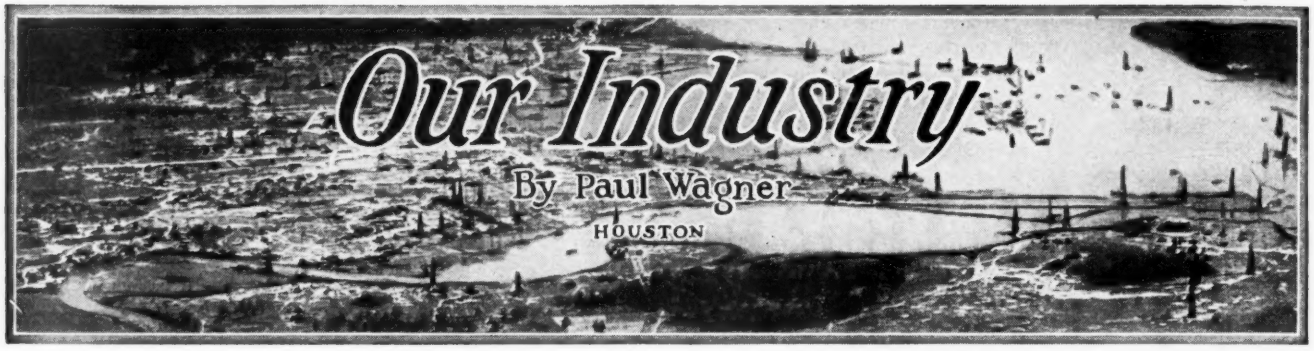

RALPH J. REED, formerly chief engineer of the Union Oil Co. of California, is now on a honeymoon with his bride, who was Miss Alberta Mann, confidential secretary to President W. L. Stewart of the Union. Mr. Reed and Miss Mann were married at Los Angeles, Sept. 23, after which they left on an extended motoring trip through Pacific territory. They will be at home in Los Angeles after their return.

Mr. Reed's resignation from the Union recently followed the reorganization of the administrative personnel so as to group the engineering activities of the company under its various divisions instead of through a central staff. It was recognized both by the company and by Mr. Reed that certain ends sought could be best accomplished under the changed policy, but the incentive no longer existed for a man of Mr. Reed's training and experience to remain in the organization.

In his twelve years with the Union, Mr. Reed has headed the engineering and research organization composed most of the time of a minimum of 500 men. At times the men employed in the department reached to the total of 1400.

Mr. Reed has made no announcement of future plans, but will be open for consulting work until such time as he sees fit to engage in business on his own account.

Leonard M. Fanning, in charge of public relations work of the American Petroleum Institute, was the honor guest at an informal luncheon given at the Palace Hotel, San Francisco, on the occasion of his recent visit to the Pacific Coast. Norval White, in charge of western offices of the A.P.I. was the host.

Present at the gathering were Phil Patchin, assistant to the president, Standard Oil Co. of California; L. D. Jurs, vice president, Associated Oil Co.; David M. Folsom, consulting geologist and engineer, formerly assistant to the president of the General Petroleum Corp.; and Paul Wagner. Mr. Fanning returned to the east after a visit to southern California. He was accompanied by Mrs. Fanning.

* * *

J. E. Hartin, for nine years a driller in the Mexican Gulf Oil Co. organization, is now on a month's vacation in Texas. When his vacation is over Mr. Hartin will join the field division of the Gulf Production Co. at Houston.

* * *

Robin Willis, formerly a consulting geologist at Midland, Texas, has gone to Calgary, where he will join the exploratory organization of the Nordon Corp., Ltd., of which Glen M. Rubey is now president. Robin Willis is a brother of C. G. (Neil) Willis, now of Los Angeles, who is president of an American subsidiary styled the Nordon Corp., of Delaware.

* * *

"Danny" Craig, export manager of the Cooper-Bessemer Corp., who signs the hotel register from Grove City, Pa., has been making an extended business trip to the Pacific Coast. While in San Francisco he visited with James H. Jenkins, production manager of the Associated Oil Co., who was transferred to California last spring from the Tidal Oil Co. of Texas at Fort Worth.

* * *

Ernest Nicklos, production vice president of the Continental Oil Co., Ponca City, returned to Oklahoma late in September after a trip to Los Angeles and the Kettleman Hills territory. While in California, Mr. Nicklos had a taste of dealing with "wild wells" again, the first Continental completion at Kettleman requiring more than a week to bring it under control.

Before his alignment with the Continental and prior to his previous connection with The Texas Co., at Tulsa, Mr. Nicklos was an individual producer and drilling contractor in Mexico. It was there he first learned how interesting a well out of control can be at times.

* * *

An accompanying group picture taken at a recent gathering of production engineers in Galveston shows three members of the Shell Petroleum Corp.'s central division staff. From left to right, they are L. L. Lookabaugh, central division land department, Dallas; E. C. Lawry, Wichita Falls district production superintendent, Wichita Falls; and E. N. Van Duzee, Winkler district production superintendent, at Wink. This group, and others of the Shell organization, are seldom found missing at meetings where development and production engineering subjects are discussed.

* * *

Gilbert Smith, general manager of the Venezuela Seaboard Corp., has been spending his vacation at Santa Monica, Cal., with his brother, Don Smith, known for his core-drilling work in the Isthmus of Tehuantepec region of Mexico.

L. L. Lookabaugh, E. C. Lawry and E. N. Van Duzee, reading from left to right

Ralph J. Reed

W. A. (Bill) Jacobsen, individual operator in the Panuco district of Mexico, has now turned his attention to California. He is starting a wildcat well in the Lost Hills region, making headquarters at Los Angeles.

* * *

Leo Fleischman Jr., is now handling central America marketing territory for The Texas Co., in the organization of O. B. Small, general sales manager at New York City.

* * *

George L. Blalock, driller for the Mexican Gulf Oil Co. at Altamira, northern Panuco district, is spending a month's vacation at San Antonio and elsewhere in Texas.

* * *

Personnel changes announced by the Pierce Oil Co., at its Tampico district refinery include the appointment of H. Koop to be auditor, replacing H. Dowse. Ray Tansey, formerly purchasing agent, becomes assistant auditor. Joe Nichols replaces Mr. Tansey.

* * *

G. C. (Clark) Gester, chief geologist of the Standard Oil Co. of California and past president of the American Association of Petroleum Geologists, is back at his desk after a short illness. His brother, S. H. (Steve) Gester, also of the Standard's geological organization, recently recovered from a severe attack of blood poisoning affecting one hand.

* * *

Paul I. Fagan of San Francisco, who will be remembered in the oil industry as western cargo buyer of petroleum products for James B. Berry & Sons, in 1923-1924, has returned home after a summer spent in Europe. He traveled as far north as Spitzbergen with his bride, the former Mrs. Templeton Crocker of San Francisco.

A. S. (Alex) Feild, chairman of the Texas-Louisiana-Arkansas district of the American Petroleum Institute Division of Development and Production Engineering, is in charge of east Texas operations of the Shell Petroleum Corp., with Dallas headquarters. Before the recent realigning of central division operations of the Shell he was quartered in West Texas. Central division production affairs are administered by E. G. Allen of Dallas as manager.

* * *

H. D. Crider, formerly of the Dixie Oil Co., Inc., subsidiary of Standard Oil Co. of Indiana, at Muskegon, has resigned to become head of the geological staff of the Muskegon Oil Corp. and four associated enterprises. He was succeeded in the Dixie organization by Victor G. Hill, formerly Mr. Crider's assistant.

* * *

John W. Tryon, general manager of the Gulf Refining Co.'s plant at Port Arthur, has returned to his Texas home after a business trip to general headquarters at Pittsburgh.

* * *

Carey P. Butcher has been transferred from San Angelo, Texas, to Roswell, New Mexico, by the Continental Oil Co. He was in charge of a geological office that has since been abandoned at San Angelo.

* * *

L. B. Tannehill, who in recent years has drilled many test wells for oil in Shackleford county, central Texas, has returned to California, where he is starting a well on the Stork ranch, near Elwood. Mr. Tannehill is widely known for his earlier successful operations in the Maricopa, California, district.

* * *

R. D. Matthews, vice president of the Union Oil Co. of California in

Norval White

A. S. Feild

charge of manufacturing, recently returned to Los Angeles after a summer spent in Europe. After business conferences in London and a visit to the Continent, he spent some time at his old home in Wales.

* * *

G. B. Watson has been appointed general superintendent of the Rio Grande Oil Co.'s production activities, succeeding Abbott Jenks, whose resignation was announced at Los Angeles. Mr. Watson had been in charge of the Rio Grande's Elwood district.

* * *

William McMurray, who recently resigned from the Continental Oil Co.'s producing organization at Los Angeles, is taking a rest at Hot Springs before announcing future plans. Mr. McMurray, who is widely known in the Pacific Coast industry, was production vice president in the old Marland Oil Co. of California organization.

* * *

Norval White, Pacific Coast representative of the American Petroleum Institute, with headquarters at San Francisco, has spent many years in the study of the oil business from the economic and statistical viewpoints. He has been in charge of the California office of the A. P. I. since its establishment. Previously he was engaged in federal work dealing with oil industry appraisals. He is an engineer by training.

* * *

H. E. McCullough recently moved from Long Beach to Los Angeles and is representing the Amerada Petroleum Corp., in its studies of Pacific Coast conditions. No announcement has been made as to whether the Amerada will open a California office or not.

Continental's Kettleman Hills Well Producing 7,000 Barrels

By Jack N. Westsmith
N. P. N. STAFF WRITER

LOS ANGELES, Sept. 27

INTEREST in the Potrero field, between Inglewood and Rosecrans on the Beverly Hills-Newport uplift, received a severe jolt early in the week when the well causing the interest sanded up and died. This well, George F. Getty Co.'s Parker 1 has now been cleaned out and is producing approximately 1000 barrels of 42.4 gravity oil.

Not in the least daunted by the recent fiascos in the Lawndale and Santa Barbara Mesa fields, where it is estimated that over 10 million dollars were put into dry holes, operators are preparing to drill for the high gravity sand supposed to have been located by the Parker No. 1.

Over a dozen holes will have been started at Potrero within two weeks unless Getty's well proves a "cropper." Associated a pioneer at Potrero will spud-in within a day or so on a small strip of land it controls along the western edge of Inglewood Park Cemetery and east of the Parker No. 1. Permits to drill have been granted to Sunset Pacific Oil Co., Cypress Petroleum Co., Hancock Oil Co., and Globe Lease and Royalty Co., and seven additional permits have been given to Getty to drill on property near the discovery well.

York and Lockhart, two Independent operators in the Los Angeles Basin fields, have bought the controlling right to the Harlin-Blinn No. 1 located a block south of Parker No. 1 and in preparation for a production test ran 6⅝-inch liner to 3880 feet. The Harlin well started to blow in several days ago from a depth of 3809 feet when only 5 feet of oil sand had been penetrated.

Because of the number of dry holes surrounding the present area of active drilling, many operators are very skeptical of obtaining large commercial producers in the Potrero field, although they admit that the Getty well looks like a find.

General Petroleum Corp.'s Erburu No. 1, west of Elwood, which was scheduled for a production test early in the week is reported to have failed to have the necessary kick to make a flowing well. At the present time it is reported that a second production test will be made, after which, if the well remains inactive, the pump will be used.

Contrary to first reports the oil found in General Petroleum's wildcat is reported to be rather low grade, having a gravity of 20.6 and resembling very much the crude found at Summerland nearly 25 miles east along the coast. Oil was found in the Erburu well at about the same depth from which the Summerland wells are producing, that is above the 1300-foot level.

There is a possibility that if the well is drilled deeper a supply of gas might be found sufficient to raise the oil but as the Vaqueros formation, in which this well is now thought to be bottomed, is hardly ever more than 200 feet thick, engineers are not hopeful of obtaining a flowing well.

Barnsdall-Rio Grande interests' tideland well on permit No. 88-1 is now standing cemented at the top of the Vaqueros sand and is due for a production test within a day or so.

Continental Oil Co.'s Elliott 12-8 in the Kettleman Hills was under full control by the installation of a second Christmas tree and is now making nearly 7000 barrels of 60.5 gravity oil and 130 million cubic feet of gas per day.

The well will require six lead-in lines and 18 traps to handle the flow of the well. The oil is being delivered to General Petroleum Corp. which has a contract for the oil for one year. General Petroleum is reported to be selling the oil to Standard Oil Co. of California which is piping it out of the field.

Part of the gas is being passed through an absorption plant built on Continental property by Charles Gallagher. The 35 million cubic feet capacity of this plant is being doubled at the present time and plans are under way to enlarge it still further.

Southern California Gas Co. is reported to have agreed to take 20 million cubic feet of the dry gas daily to serve a number of towns south of the field. It is also rumored that some of the gas will be taken by the Pacific Gas and Electric Co. in its pipe line to San Francisco and other northern towns.

MILHAM EXPORATION CO.'S discovery well in the Kettleman Hills has declined in production since the completion of Continental's well and is now flowing about 2400 barrels of oil per day.

Including the wells producing and plugged at the top of the oil sand there are 24 wells below 6000 feet at Kettleman Hills. Production is now in the neighborhood of 11,000 barrels from three wells—Standard Oil Co.'s 81 for 1000 barrels and 20 million cubic feet of gas, Milham's Elliott 1 for 2300 barrels of oil and 70 million cubic feet of gas, and Continental's 12-8 for 7000 barrels of oil and 120 million cubic feet of gas.

This 11,000 barrels of high gravity oil is equivalent to approximately 30,000 barrels of oil from any other California field, with the possible exception of Potrero where the oil has a gravity of 43 degrees.

RIO GRANDE OIL CO.'S Havenstrite 1 in the Maricopa Flats, which was cleaned out after having sanded up, was recompleted for an initial production of 4600 barrels and at latest reports had increased this daily output to nearly 5000 barrels of 22.5 gravity oil. The hole is bottomed at 3351 feet with casing set at 3296 feet.

North American Consolidated and Standard Oil Co. are starting offsets to Rio Grande's completion and an extensive drilling campaign is expected in this area. Rio Grande is also making preparations to spud-in another well on property located at a distance from its Havenstrite.

New completions at Santa Fe Springs failed to be sufficient in number and size during the past week to offset the natural decline suffered by deep zone producers.

O'Connell zone producers showed a decrease of 30,240 barrels to give a total daily average of 129,080 barrels. Only two of the completions were made in the O'Connell zone during the past week and their combined output was less than 2000 barrels. Of the 40 wells in this zone, 35 are drilling, 2 are cemented and 3 are preparing to complete.

Clarke zone producers showed a decline of 4200 barrels during the past week as it was estimated that 28 wells yielded 64,960 barrels as against 69,160 barrels for the previous week. Seven wells completed in the Clarke for an average of 2200 barrels brought the daily production from this zone to a new peak notwithstanding the above mentioned natural decline.

Clarke zone producers must bear the brunt of preventing a sharp decline in production at Santa Fe Springs as many of the wells now being drilled have this zone as their objective. There are 25 wells drilling below the O'Connell zone and above the 7500-foot level, four between 7500 and the

top of the Clarke, at about 7800 to 7900 feet, and 28 are drilling in, five are cemented over and 2 are preparing to complete in the Clarke sand.

The Texas Co. is drilling below 8500 feet in its Patterson No. 10 and is coring oil sand and shale. As there is an extensive layer of shale separating the rich sand in which this well is drilling from the overlying Clarke zone, engineers think that a new zone may have been found.

Since the discovery of the Clarke sand several months ago the theory has been advanced that the top of this zone is but the beginning of the Miocene, the prolific oil producing horizon at Long Beach, in which case Commercial production may be expected down to if not beyond the 10,000-foot level.

Use of water detecting instruments in Associated Oil Co.'s Fulton 3 and Fulton 4 have definitely proven that water is present in the oil sands at a depth of approximately 200 feet below the shoe. In Fulton 3 which was cemented at 8025 feet the device detected water at between 8250 feet and 8270 feet, so that even though the sand cored below this point have a good cut of oil, the large amount of water present shuts the oil out of the hole and prevents large producers from being the rule from this level.

There are in excess of 150 wells with the Clarke zone as their objective, although the majority are located around the edge of the field outside the productive area of the O'Connell zone, on the west and south sides. As these wells are of varying depths their completions will be distributed over a period of 9 to 10 months.

Production by zones at Santa Fe Springs for week ended Sept. 26 was as follows:

Zone	Production	No. Wells	Average
Nordstrom	13,835	21	659
Buckbee	22,330	41	545
O'Connell	129,080	99	1323
Clarke	80,365	35	2296
Upper Zones	26,238	217	121

Completions in Oklahoma and Kansas, Week Ended September 28, 1929

OKLAHOMA

Carter County

Company	Well No.	Location	Depth	Init. Prod.
Boring et al	6	SEc SW SE NW 10-4-2 W	2046-2200	140
Franklin-Prairie	14	SW NW NW 3-2-3 W	2592-3280	160
Ven-Mex	2	NE SW SE 23-1-3 W	2348-2769	70
Ven-Mex	1	SE SW SE 23-1-3 W	2428-2725	20
Woodruff	1	NE NW SE 32-4-1 E	T.D. 2310	Dry
Magnolia	8	SW NW SW 33-1-3 W	T.D. 4648	Dry
Magnolia	5	NEc SE 32-1-3 W	T.D. 4455	Dry

Creek County

Prairie	3	NWc SE 18-16-9 E	T.D. 2841	Dry
Short et al	1	NEc SW 1-19-8 E	T.D. 3012	Dry
Selby	6	SW SE NE 18-16-9 E	T.D. 3048	Dry
Bay State	18	SW SE NW 9-18-7 E	2545-2590	10
Ice	7	NW SW SW 13-17-10 E	1892-1939	70
Dedman	1	SEc SW 17-17-10 E	2084-2143	25
Wright et al	25	CNL NW NW 24-17-10 E	1840-1883	30
Kurkell	2	SEc 11-17-11 E	1223-1238	10
Texas Pacific	3	SW NW NW 17-16-9 E	2628-2680	10
Skelly	2	NE SE SW 30-15-9 E	3607-3616	75
Logan-Kessler	2	SE NE NW 27-14-10 E	3325-3337	20

Grant County

Amerada	1	NEc NW 17-29-4 W	4779-4685	1000
Consolidated Gas Utilities	1	SWc NE 14-27-3 W	T.D. 4681	Dry

Harper County

Hoffer	1	NWc SE 14-25-22 W	T.D. 4053	Dry

Kay County

Harris-Haun	1	NW SW SE 14-27-1 E	T.D. 733	Dry
Wentz	2	SEc NW 31-27-2 E	T.D. 4160	Dry

Kingfisher County

Crawford-McKenno	1	NEc SW 27-16-6 W	T.D. 4907	Dry

Logan County

Shell	7	NW SE SE 30-19-4 W	T.D. 6169	Dry

Marshall County

Bilbo	2	NWc SE NW NW 30-5-6 E	545-640	15

McIntosh County

Sessions	1	CSL SW NW 22-12-14 E	T.D. 805	Dry

Muskogee County

Hutchinson	1	SW NE NW 13-15-15 E	T.D. 1993	Dry
Bement	1	CNL NE SE 15-13-16 E	1848-1852	5M

Noble County

Midco	15	NEc SW NW 29-24-1 W	T.D. 2024	Dry

Okfuskee County

Champlin	14	NE SE SE 15-11-11 E	1649-1680	8
Atkins	1	SW SE NE 14-10-9 E	T.D. 3377	Dry
Sheridan	1	SE NE NW 24-15-11 E	2236-2244	10M
Misener	4	SEc SW NE 10-15-14 E	993-1010	5
Mechlin-Berlin	7	CWL SE NE 14-14-14 E	1803-1837	6
Wallace	9	NWc SW NE 14-14-14 E	1080-1093	12
Sheedy	15	NWc SE SW 23-13-14 E	1149-1171	7

Osage County

Peters-Prod. & Ref.	3	NE NW NE 27-27-11 E	1653-1668	40
Jones	1	SEc SW 2-26-8 E	2280-2392	5
Texas	8	SE NW SE 30-25-8 E	2467-2488	150
Okla. Power & Water	121	NW NE SW 4-20-10 E	422-428	½M
I. T. I. O.	416	SW SE SE 35-29-10 E	T.D. 533	Dry
Oliphant	1	NE SW NW 26-23-9 E	T.D. 2509	Dry

Pawnee County

Fisher et al	2	NWc SE 16-21-7 E	T.D. 3095	Dry
Mowry-Fugate	1	CWL NW NW 18-20-8 E	T.D. 470	Dry
Geraldine	2	SE NW SW 30-21-9 E	1096-1118	15

Pontotoc County

Empire	3	NW SE NW 19-5-5 E	2315-2337	1005
Independent	1	SW NE NW 19-5-5 E	2345-2373	190
Benedum-Trees	1	NE SW SW 28-5-5 E	1457-1458	8M
Benedum-Trees	5	NE SE NE 31-5-5 E	2540-2560	125

Pottawatomie County

Prairie-Slick	5	SE SW NE 19-6-4 E	3597-3633	200
Magnolia	4	SW NE NW 22-7-4 E	3596-3663	8½M
Magnolia	2	NE NW SE 8-7-4 E	3750-3786	45
Darby	6	NW SE NW 16-7-4 E	4074-4084	100
Mid-Continent	4	SWc 5-9-5 E	4298-4320	310
Commerce Dev	1	NE NE NW 19-6-4 E	3696-3716	40
Darby	3	NEc NW 16-7-4 E	T.D. 4127	Dry
Phillips	2	SE NE NW 19-8-5 E	T.D. 4496	Dry OWD

Seminole County

Magnolia	1	NEc NW 5-8-7 E	T.D. 3527	Dry
Magnolia	1	NE SE NW 18-8-6 E	T.D. 4360	Dry
Gypsy	2	NW SW NW 8-8-6 E	T.D. 4456	Dry
Prairie	2	SW NW SW 17-9-6 E	4245-4259	2900
Prairie	1	SE NE NW 18-9-6 E	4269-4283	2170
Signal	3	NE SW NE 13-6-7 E	4135-4136	1250
Burke-Gries	5	SEc NE SE 18-5-8 E	2535-2625	350
Shell	2	NW NE SE 7-6-8 E	4158-4160	510
Sinclair	8	SE SW SE 7-6-8 E	4270-4271	25
Gypsy	1	NE SW SE 5-7-7 E	4197-4205	1805
Gypsy	5	SEc NE 5-7-7 E	4188-4200	3360
Gypsy	4	SW SE NE 5-7-7 E	4224-4232	1940
Empire	3	NW SE SW 13-7-6 E	3110-3117	70M
Sinclair	5	NW NE NW 11-8-5 E	4223-4226	265
Sinclair	3	SE SW NE 18-9-7 E	4285-4303	280
Cont.-Sinclair	2	NE NW SW 18-9-7 E	4165-4263	130
Magnolia	6	NW SW NE 18-9-6 E	4280-4297	3240
Gypsy-Devonian	5	NW SW SE 18-9-6 E	4237-4250	3725
Minnehoma	1	SW NW NW 19-9-6 E	4215-4236	8937
Gypsy	2	SE NW NE 18-9-6 E	4258-4292	1385
Barnsdall	1	NE NW SW 18-9-6 E	4162-4248	10
Carter	2	NWc SW 11-9-6 E	3911-4003	20
Carter	1	SW NW SE 11-9-6 E	3992-4064	10
Shell	2	NEc SW 32-10-6 E	4075-4106	15
Gypsy	6	SE NE SE 14-7-6 E	3245-3250	20M

Stephens County

Pace et al	1	SW NE SE 13-2-8 W	1902-1916	25
Magnolia	5	NWc NE NE SE 13-2-8 W	1433-1444	7
Carter	9	SWc NW SE SE 34-1-8 W	1927-1939	15
Jenkins et al	1	NEc SW NE SW 21-2-7 W	T.D. 1853	Dry
Pace et al	10	NEc NW SE 13-2-8 W	T.D. 1452	Dry
Ven-Mex et al	1	C NW NW 2-2-8 W	T.D. 2487	Dry
Hedrick et al	3	SWc NW SW SW 35-1-8 W	T.D. 1933	Dry

Tulsa County

Parks	2	NWc SW SW 19-16-14 E	1672-1679	5
Hoss et al	1	SWc 2-19-10 E	1765-1781	8

KANSAS

Butler County

Arkansas Natural	1	SEc 9-26-3 E	2766-2770	35
Empire	3	SE NE NW 34-27-5 E	2726-2755	150
Empire	85	SW SE NW 20-26-5 E	2524-2584	150
Empire	17	NW SE SW 19-26-5 E	2618-2693	75

Chautauqua County

Miller	3	NW SE SE 33-32-10 E	1504-1540	20

Cowley County

McNabb-Bess Drlg-Prairie	1	SE NE NE 7-33-3 E	3487-3499	150

Elk County

Elk	9	NW NE NE 9-30-9 E	T.D. 2775	Dry
Union et al	1	C SE NW 1-31-9 E	T.D. 1595	Dry

Greenwood County

McCullough et al	1	NW SW NE 17-24-13 E	T.D. 1617	Dry
Simmons et al	7	NEc NW 18-22-11 E	T.D. 2191	Dry
Walton	1	NE SW NW 5-24-13 E	1620-1640	40
Empire	2	SE NW SE 36-23-11 E	1764-1845	400
Phillips	4	NEc 28-23-11 E	1873-1955	200
Dixie-Amerada	1	NWc 27-23-11 E	1859-1920	200
Empire	5	SEc 21-23-11 E	1850-1935	500

Harvey County

Rosenthal et al	1	C NW SW 24-23-3 W	T.D. 4060	Dry

Kingman County

Fleeger et al	1	SEc NE NE NW 21-27-7 E	T.D. 1350	Dry

Osborne County

Trees	1	NE SE SE 22-6-15 W	T.D. 3650	Dry

Sedgwick County

Milmac	1	NWc 22-28-1 E	T.D. 3520	Dry
Lario	1	SWc SE 7-27-2 E	T.D. 3403	Dry
Old Trail et al	1	SEc 27-27-1 E	T.D. 3404	Dry
Ramsey et al	2	NEc SE SW SW 15-26-2 E	T.D. 3282	Dry
Skelly	1	NEc NW 11-26-2 E	T.D. 3205	Dry
Rogers et al	1	SWc SE SW SW 15-26-2 E	3218-3225	145
Hays et al	2	SEc SW SE SW 15-26-2 E	T.D. 3202	290

Woodson County

Harper	1	NWc SE 28-23-14 E	1638-1652	1 0

Completions in California, Week Ended September 21, 1929

Long Beach

Company	Well No.	Location	Depth	Init. Prod.
Cal. Western Oil Co.	H. & D.	....	7109	730
Continental Oil Co.	Denio 2	....	7487	875
Dabney-Johnson Corp.	No. 40	....	4655	480
D'Angelo Oil Co.	No. 5	....	7407	320
Hoyt, Otis	No. 3	....	7729	1100
A. N. Macrate	Buffum 1	....	7005	600

Santa Fe Springs

Associated Oil Co.	Dewenter 6	....	6875	2750
W. S. Kyle	Off. 1	....	6480	1504
Marsten Oil Co.	Hathaway 5	....	6854	1000
Standard Oil Co.	So. Whittier Comm. 23	....	7945	1560
Star Pet. Co.	No. 3	....	6848	550
Superior Oil Co.	Wardman 7	....	7870	7200
The Texas Co.	Baldwin 3	....	6875	2075
Union Oil Co.	Bell 29	....	6860	3379

Potrero

Getty, Geo. F.	Parker 1	....	3846	1350

Richfield

Company	Well No.	Location	Depth	Init. Prod.
Superior Oil Co.	Jesson 1	....	4647	275

Seal Beach

Continental Oil Co.	Bixby 28	....	5556	2250

Huntington Beach

Richfield Oil Co.	Dieter-Golay 1	....	3579	110

South Mountain

The Texas Co.	Willard 26	....	3711	155

Elwood Tidelands

Pacific Western Oil Co.	Permit No. 92	No. 1	3583	4250

Belridge

Ohio Oil Co.	No. 31	30-28-21	700	21

Kern Front

General Pet. Corp.	Wetmore 2	14-28-27	2012	350

Maricopa Flats

Birch Oil Co.	No. 1	7-11-25	2710	1000

Mt. Posa Creek

Signal Oil and Gas Co.	Gilmore 7	27-27-28	1623	200

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended September 28, 1929

OKLAHOMA

Carter County

Company	Well No. & Farm	Location
Carter	8-Dixon	SE SW NW 30-1-3 W
Carter	9-Dixon	SE NE NW 30-1-3 W
Ven-Mex	1-Putman	NE NW SW 30-1-3 W

Cotton County

Shasta	1-Patterson	SEc NW 1-2-10 W

Creek County

Phillips et al	2-Houston	NWc NE NE 20-19-9 E OWD
Sherry-Carter	2-Harmon	C SW NE 28-19-9 E
Magnolia	21-Vance	CNL NW NE 7-18-7 E OWD
Jackson-Wise	1-Grayson	NEc SE SE 20-18-9 E
Pawnee	5-Johnson	C SE SE 14-17-8 E OWD
Reiter-Foster	1-Littlehead	SWc SE 17-17-10 E
Magnolia	2-Talmase	CWL NE NW 3-16-7 E OWD
Kistler	1-Bear	NEc SE SW 16-14-10 E

Kay County

DeCamp	2-Sharp	C NE NE 25-28-1 W

Kiowa County

Adams	1-Hamilton	NWc SW 2-6-17 W

Logan County

Shell	4-Storey	SE NE SW 30-19-4 W

Lincoln County

Slick	1-Massie	NEc SE 18-14-4 E

Noble County

I. T. I. O.	1-Abbers	NWc NW 3-20-1 W

Muskogee County

Western Drlg. & Equipment	1-Townlot	SEc NW SW NW 35-15-18 E
Lovelane et al	1-Townlot	C NW SW NW 35-15-18 E
Denton-Marshall	1-Grayson	SEc NE NW 12-15-15 E
Miller et al	2-Jackson	CEL NE NW 8-13-16 E
McMahon-Bower	1-Griffith	NWc SE NE 23-13-18 E
Mussellem	2-Carver	CSL NE NE 4-13-19 E

Okfuskee County

Champlin	7-Washington	SE NE SE 15-11-11 E
Mid-Continent	1-Grayson	NEc SW 31-11-11 E

Oklahoma County

Franklin et al	4-Lowery	C E½ E½ NW 12-11-3 W
Franklin et al	9-Trosper Park	NE SE NW 12-11-3 W
Cromwell-Franklin	10-Trosper Park	NWc SE 12-11-3 W
Franklin et al	11-Trosper Park	SW SE SE 12-11-3 W
I. T. I. O.	1-Brokaw	NW NE NE 13-11-3 W
I. T. I. O.	3-Brokaw	NEc 13-11-3 W
I. T. I. O.	2-Brokaw	SW SE NE 13-11-3 W
I. T. I. O.	7-Trosper Park	NE NW SW 13-11-3 W
I. T. I. O. et al	8-Trosper Park	NWc SW 13-11-3 W
I. T. I. O. et al	9-Trosper	NW SW SW 13-11-3 W
Slick	1-Zecherle	NEc 13-11-3 W
I. T. I. O. et al	1-Pasadena Heights	NW SE SE 14-11-3 W
I. T. I. O. et al	2-Unsell et al.	NW NE NE 23-11-3 W
I. T. I. O. et al	3-Fortson	NE SE NE 24-11-3 W
I. T. I. O. et al	3-Fortson et al.	SE NE NE 24-11-3 W
I. T. I. O.	2-Farley	SW NW NW 19-11-2 W
I. T. I. O.	2-Fuzzell	NW SW NW 19-11-2 W
Slick et al	1-Hussman	SW NW SW 29-11-2 W
Shell	6-Petty	NE NW NE 30-11-2 W
Shell	7-Petty	SE NW NE 30-11-2 W
Prairie-Slick	6-Hiddleston	SE SW SE 19-11-2 W
Prairie-Slick	7-Hiddleston	NE SW SE 19-11-2 W

Okmulgee County

Company	Well No. & Farm	Location
Kirkland-Son	5-Price	CWL NE NW 20-15-13 E
Mechlin-Herlin	1-Chatman	CWL SW NW 13-14-14 E
Tiger Mountain	13-Fowler	SWc SE SE 35-14-14 E OWD
Lambert	5-Freeman	SE SE NW 7-13-15 E

Osage County

Berlin	11	SW NE SW 20-29-9 E
I. T. I. O.	420	NEc SW SW NE 34-29-10 E
Peters	7	NW SE SE 22-27-11 E
Tidal	7	SW NW SE 20-24-9 E
I. T. I. O.	418	NEc SW SE 20-23-8 E
Oliphant	4	SWc NE NW 6-23-9 E
Silurian	56	SWc NW NE NW 17-23-12 E
Barnsdall et al	5	NE SE SE 22-22-11 E

Pawnee County

Owen	1-Bentley	SEc NE 36-20-6 E

Payne County

Magnolia	2-Grove	SEc NW 27-19-4 E OWD
Transcontinental	2-Lincoln	SWc SE 4-18-5 E
Pure	1-Kennedy	NEc NW 9-18-5 E

Pontotoc County

Independent	2-Norris	SE NE NW 19-5-5 E
Homaokla	4-Shields	NE SW SE 33-5-8 E
Empire	4-Norris	NE SE NW 19-5-5 E
Empire	1-Bumpers	SW NE NE 19-5-5 E
American	4-Roberts	SWc SE 19-5-5 E
Benedum-Trees	1-Northam	SWc SE 30-5-5 E
Benedum-Trees	1-Stafford	NE SW NW 31-5-5 E

Pottawatomie County

Obermayer et al	1-Townlot	SWc 18-6-4 E
Magnolia	1-Billington	SWc 30-9-5 E
Twin State	1-Brown	SWc NW NE 22-7-4 E
Indep.-Darby	2-Curly	SW SE NW 22-7-4 E
Indep.-Darby	1-Curly	NW SE NW 22-7-4 E OWD
Shell	2-Hines	SE SW NW 22-7-4 E
Indep.-Darby	3-Pappan	SW SE SE 16-7-4 E
Healdton	1-Townlot	NWc SW NW 8-9-5 E
Obermayer et al	1-Townlot	NEc SE NW 8-9-5 E
Healdton	1-Townlot	NEc NW SW NW 8-9-5 E
Commerce Dev.	1-Barrett	NWc NE SE NW 8-9-5 E
Kitney	1-Townlot	NEc SW NW 8-9-5 E

Seminole County

Minnehoma	5-Noe	NW SE NW 17-9-6 E
Texas	1-Magruder	SWc NW 19-9-6 E
Shell	2-Hopper	NE SW NE 19-9-6 E
Shell	3-Hopper	NE SE NE 19-9-6 E
Wrightsman	4-Green	SE NE NE 19-9-6 E
Gypsy	2-Maley	SW NW NW 20-9-6 E
Burke-Greis	3-Jones	NE SW SW 17-9-6 E
Carter	2-Harber	SWc SE 7-9-6 E
Sinclair	6-Nichols	SE NE NW 19-9-6 E
Sinclair	5-Nichols	SW NW NE 19-9-6 E
Texas	2-Magruder	NE SE NW 19-9-6 E
Tidal-Interocean	1-Scott	NEc SW 19-9-6 E
McCulloch et al	1	NWc SE 20-9-6 E
Sinclair	1-Nevins	NW NE NW 5-9-6 E
Burke-Greis et al	2-Wentz	SW NE SW 17-9-6 E
Gypsy	3-Maley	NE NW NW 20-9-6 E
Shell	4-Hopper	NW SW NE 19-9-6 E
Tidal	1	NW NE NW 20-9-6 E

(Continued on Page 55)

New Field Operations in Oklahoma, Kansas, North, North Central, East Central, Panhandle and West Texas, Week Ended September 28, 1929

(Continued from Page 54)

Company	Well No. & Farm	Location	Survey
Cont.-Shaffer	8-Harris	NE NW SW 4-7-7 E	
Cont.-Shaffer	7-Harris	NW NE SW 4-7-7 E	
Blackwell	1-Baker	SW NW SE 11-7-6 E	
Carter	2-Eleck	NW SW SE 23-7-6 E	
Carter	2-Spellman	NW SW SW 7-6-8 E	
Barnsdall	1-Sunday	SEc 25-5-5 E	
Prod. & Refs	1-Jefferson	NE NW SE 19-9-6 E	
Prod. & Refs	2-Jefferson	NWc SE 19-9-6 E	
Prairie-Slick	1-Tiger	NE NW NE 8-7-7 E	
Stephens County			
Pace et al	1-Vass	SE NW SW 23-2-7 W	
Pace et al	1-Horton	SE SW SE 26-2-7 W	
Pace et al	4-Bristowe	NEc NW NW SW 18-2-7 W	
Sykes et al	1-Broadbent	SWc SE NW 16-1-8 W	
Tulsa County			
Gilbertson et al	1-Fields	SE NW SE 21-16-14 E	
Highland	5-Mason	CSL NE NE 16-16-14 E	
Bessinger et al	1-Fox	SWc NW NE SE 14-16-13 E	
Tidal	2-Agent	SEc SW SW NE 12-16-13 E	
Superior	2-Johnson	SE NE NW 18-19-12 E	
Wagoner County			
Mitchell	2-Bruner	NEc NW NE 2-16-16 E	
Knox-Shouse	2-Barnett	CSL NE SE 12-16-15 E	
KANSAS			
Butler County			
Alladin	1-Kugler	SWc NE 24-27-3 E	
Empire	12-Cranston	SE NE SE 22-27-5 E	
Cowley County			
Lewis Prod	1-Hill	SE SW NW 20-31-6 E	
Slick-Pryor-Lockhart	1-Ratts	NW NE SE 25-30-5 E	
Trees	1-Brubaker	CEL SE NW 12-34-6 E	
Elk County			
Union-Clay	1-Ware	C NE NE 5-31-9 E	
Greenwood County			
West Coast Lease	11-Souders	SE NE SW 31-25-13 E	
Roth-Faurot	1-Martindale	SEc NE 30-23-10 E	
Walton	1-Gassoway	SEc SW 6-24-13 E	
Sheedy et al	1-Dalton	SE NW NW 5-24-13 E	
Empire	4-Hoggett	SWc NW SE NW 9-25-13 E	
Akeman-Baker et al.	3-Young	CNL SE NE 22-22-13 E	
Simmons-Rhodes	2-Patterson	NW SW SW 22-23-11 E	
Harper County			
Beeler et al	1-Bear	C NE 21-31-6 W	
Lyon County			
Sheedy et al	3-Hughes	NE NW SW 19-21-10 E	
Marion County			
Alladin	2-Rampel	NW SE SE 12-19-2 E	
Rush County			
Danciger et al	1-Nevi	NWc 26-17-17 W	
Sedgwick County			
White Eagle	3-Robbins	SW NE SE 20-28-1 E	
Bu Vi Bar et al	1-Wright	SE SW NE 12-26-1 W	
Bu Vi Bar et al	9-Wright	NEc NW SE 12-26-1 W	
Woodson County			
Curtis et al	1-Shrangher	NE NW NE 22-25-14 E	
Harper	2-Reed	SWc NE 28-23-14 E	
TEXAS			
NORTH CENTRAL & EAST CENTRAL			
Brown County			
Ven-Mex	8-Hickman	Blk-801	McGlion
Amerada	3-Edmondson	.....	Townsend
Lloyd	6-Duff	Blk-624	Kenney
Smith	8-George	.....	Chaddick
American-Maracaibo	18-Bush	Blk-624	Kenney
Paramount	1-Pike	Sec-35 Blk-216	Caldwell Co. Sch. Ld.
Sawyer et al	1-Reaves	Blk-633	Belknap
Callahan County			
Moutray	1-Berry	Sec-106	BBB&C
Moutray	49-Hickman	Sec-149	BBB&C
Groginski	1-DeBaggry	.....	Anderson
Ducker	1-Williams	Sec-139	Univ. Lds.
Coleman County			
Atlantic et al	1-Gates	Sec-67 Blk-1	GH&H
Smith	4-Morris	Blk-483	Woods
White Eagle	16-Morris	Sec-25 Blk-722	Webber
White Eagle	12-Morris	Sec-25 Blk722	Webber
Cunningham et al.	1-Campbell	Sec-14 Blk-751	Martinez
Tower-McKenna	2-Crowder	Blk-483	Woods
Taylor-Link	3-McClure	Sec-105	ET
Joiner et al	1-Stewardson	Sec-96	ET
Comanche County			
Sun et al	1-Bryson	.....	Sypert
Eastland County			
Davis et al	1-Hightower	Sec-92 Blk-2	H&TC
Jack County			
Panhandle	5-Smith	.....	Hughson
Shaw	2-Box	.....	Hughson
Stephens County			
Byers	1-Hatton	.....	Nolan
Shackleford County			
Texas Consolidated	3-Reynolds	Sec-23 Blk-11	T&P
Midwest Explor	3-Davis	Sec-13 Blk-12	T&P
Sticker	5-Mathews	Sec-58	ET
Taylor County			
Condor	1-Brookerson	Blk-112	Coody
Throckmorton County			
Magnolia	1-Gathright	Sec-949	TE&L
NORTH TEXAS			
Archer County			
Pandem	1-Hansler	.....	Sanderford
Cooke County			
Coline	3-Huggins	.....	SP
Wichita County			
Bateman-Dingee	1-Woodard	Sec-290	Waggoner
Sheldon-Ven-Mex	1-Woodard	Sec-290	Waggoner
Coffee-Brewer	1-Whittenbach	Sec-303	Waggoner
Producers Drlg. et al.	2-Allen et al.	Sec-28	KWVFL
Spikes-Temple	1-Etheridge et al.	Blk-7	Palo Pinto Sch. Ld.
Mid-Cont. Hold	1-Rhodes	Blk-8	Palo Pinto Co. Sch. Ld
Wilbarger County			
Simpson-Fell	A3-Waggoner	Sec-36 Blk-2	H&TC
Consolidated	S1-Waggoner	Sec-37 Blk-4	H&TC
Ven-Mex	A1-Waggoner	Sec-1	SP
Lewis Prod	B7-Waggoner	Sec-17 Blk-4	H&TC
Waggoner	M5-Waggoner	Sec-32 Blk-4	H&TC
Empire	A14-Waggoner	Sec-32 Blk-4	H&TC
Empire	A15-Waggoner	Sec-32 Blk-4	H&TC
Empire	A16-Waggoner	Sec-32 Blk-4	H&TC
Young County			
Paull	7-Allen	.....	Lynch
Atlantic	1-Jarnagin	.....	Orrick
Long et al	1-Williams	.....	Walker
Cunningham et al.	1-Kisinger	.....	Conner
Shaw Interests	1-Jarnagin	.....	Conner
Shaw Interests	1-McLaren	.....	Conner
Bridwell	2-Cullers	.....	Hyatt
Trinity et al	1-Barrett	.....	Sergeant
Clark et al	1-Ribble	.....	Dose
PANHANDLE			
Carson County			
Texas	4-Lewis	Sec-115 Blk-4	I&GN
Texas	2-Noel	Sec-187 Blk-3	I&GN
Empire	1-Fields	Sec-13 Blk-7	I&GN
Gray County			
Texas	14-Saunders	Sec-1	Eustice
Texas	3-McCarty	Sec-10 Blk-1	ACH&B
Ray et al	1-Noble	Sec-10 Blk-A-6	H&GN
Magnolia	8-Bowers	Sec-63 Blk-B-2	H&GN
Magnolia	7-Bowers	Sec-63 Blk-B-2	H&GN
Alexander-Shell	1-McKinney	Sec-163 Blk-3	I&GN
Shamrock	2-Lincoln et al.	Sec-3 Blk-1	ACH&B
Texas	4-Shaw	Sec-5 Blk-1	ACH&B
Texas	15-Saunders	Sec-4 Blk-1	ACH&B
Shamrock	3-Saunders	Sec-4 Blk-1	ACH&B
Haymer	1-Morse	Sec-45 Blk-A-9	H&GN
Hinerman et al	1-Taylor	Sec-8 Blk-H	Wallace
Skelly	1-Chapman	Sec-69 Blk-25	H&GN
Reiger-Steckel	1-Bohr	Sec-37 Blk-B-3	H&GN
Humble	1-Chapman	Sec-69 Blk-25	H&GN
Wheeler County			
Upham	4-Gooth	Sec-81 Blk-23	H&GN
Murchison-Fain	3-Close	Sec-82 Blk-23	H&GN
Gibson	9-Bentley	Sec-42 Blk-24	H&GN
WEST TEXAS			
Crane County			
Gulf Prod	67-McElroy	Sec-201 Blk-F	CCSD
Fisher County			
Cranfill-Reynolds	1-Barrett	Sec-199 Blk-1	BBB&C
Glasscock County			
Furhman	1-McDowell	Sec-24 Blk-34	T&P
Howard County			
Moody	30-Roberts	Sec-137 Blk-29	W&NW
Gulf Prod	8-Clay	Sec-155 Blk-29	W&NW
Merrick-Bristow	10-Roberts	Sec-137 Blk-29	W&NW
Godley	6-Hooks	Sec-140 Blk-29	W&NW
Ward	15-Roberts	Sec-137 Blk-29	W&NW
Continental	3-Kloh et al.	Sec-13 Blk-33	T&P
Schermerhorn	1-Morgan et al.	Sec-13 Blk-33	T&P
Plymouth	6-Morgan et al.	Sec-5 Blk-32	T&P
Plymouth	7-Morgan et al.	Sec-5 Blk-32	T&P
American Maracaibo	3-Settles	Sec-6 Blk-32	T&P
Moody	29-Roberts	Sec-137 Blk-29	W&NW
Simms	2-Clay	Sec-127 Blk-29	W&NW
Ward	12-Roberts	Sec-137 Blk-29	W&NW
Ward	14-Roberts	Sec-137 Blk-29	W&NW
Ward	13-Roberts	Sec-137 Blk-29	W&NW
Pecos County			
Tidal	1-McDonald	Sec-46 Blk-12	H&GN
Tidal	2-McDonald	Sec-46 Blk-12	H&GN
Texas	1-McDonald	Sec-46 Blk-12	H&GN
Landreth Prod	1-McDonald	Sec-46 Blk-12	H&GN
Henshaw	1-McDonald	Sec-2	HE&WT
Indep.-Rowan-Long	.....	Sec-46 Blk-12	H&GN
Landreth Prod	1-Univ.	Sec-31 Blk-16	Univ.
World Oil Co	2-Univ.	Sec-13 Blk-18	Univ.
Taylor-Link	6-Univ.	Sec-13 Blk-18	Univ.
Taylor-Link	5-Univ.	Sec-31 Blk-16	Univ.
Continental	1-Univ.	Sec-6 Blk-17	Univ.
Landreth Prod	C2-Univ.	Sec-31 Blk-16	Univ.
Landreth Prod	3-Univ.	Sec-13 Blk-18	Univ.
Landreth Prod	1D-Univ.	Sec-31 Blk-16	Univ.
Henshaw et al	1-Univ.	Sec-24 Blk-18	Univ.
Landreth Prod	2-Univ.	Sec-13 Blk-18	
Sun	1-Univ.	Sec-34 Blk-18	Univ.
Sun	1-Univ.	Sec-25 Blk-18	Univ.
Sun	2-Univ.	Sec-8 Blk-17	Univ.
Dixie	1-McKenzie	Sec-15 Blk-604	....
Humble	11-Smith	Sec-36 Blk-194	TC
McMan	5-Richardson et al.	Sec-107	TC
California	4-Smith Lease-1	Sec-37 Blk-194	TC
McMan	8-Smith	Sec-25 Blk-194	TC
McMan	9-Smith	Sec-25 Blk-194	TC
California	3-Smith Lse-5	Sec-16 Blk-194	TC
Mid-Kansas & Transc.	3-Yates	Sec-59 Blk-1	I&GN
Sutton County			
Indep.-Sun	1-Allison	Sec-39 Blk-A	GWT&P
Upton County			
Gulf Prod	68-McElroy	Sec-200	CCSD
Valverde County			
Phantom	1-Ingram	Sec-44 Blk-D-8	EL
Ward County			
Gulf Prod	3-Written	Sec-18 Blk-5	H&TC
Shell	1-Owen et al.	Sec-16 Blk-5	H&TC

Completions in Texas, Week Ended September 28, 1929

NORTH CENTRAL & EAST CENTRAL

Brown County

Company	Well Farm	Survey	Sec. & Blk.	Depth	Init. Prod.
French et al	2-Belvin	Chaddick		1297-1317	350
Lloyd	25-Collier	Smith	Blk-139	422-437	10
Smith	4-George	Chaddick		1310-1330	100
Cross Cut	12-Keller	Mitchell	Blk-141	T. D. 1150	Dry
Ramsey	6-Henson	Logan	Blk-147	T. D. 1272	Dry
Stepp-Keister	3-Moody	Scott	Sec-12 Blk-665	T. D. 1936	Dry

Callahan County

Amerada	1-Smith	D&DA		T. D. 470	Dry
Beams	6-Jackson	ET	Sec-14	T. D. 1096	Dry
Campbell	1-Homessey	BBB&C	Sec-72	T. D. 1730	Dry
Meredith-Benton-United Royalties	2-Hickman	I&GN	Sec-2	T. D. 727	Dry
Moutray	5-Hearn	BBB&C	Sec-129	T. D. 852	Dry
Moutray	1-Brown	D&DA	Sec-47	T. D. 855	Dry
Moutray	47-Hickman	BBB&C	Sec-149	697-710	5

Coleman County

Wilmott	2-Vaughn	Bond et al.	Blk-79	966-969	6
White Eagle	4-Morris	Webber	Sec-25 Blk-722	2021-2025	250
Vacuum et al	3-Weaver	Gabel	Sec-9 Blk-271	1826-1833	492
Smith	1-Morris	Woods	Blk-483	2012-2023	125
Midwest Explor.	4-Kenney	Eubanks	Blk-270	2012-2025	30
Continental-Atlantic et al.	6-Overall	Barkley	Blk-700	2125-2131	240

Eastland County

States	7-Hise Est.	H&TC	Sec-17 Blk-4	1902-1907	7
Whitesides Bros.	1-Murrell	H&TC	Sec-29 Blk-2	1330-1336	25
Cranfill-Reynolds	1-Kellett	H&TC	Sec-30 Blk-2	T. D. 1320	Dry
Dale et al	1-Lyerla	H&TC	Sec-25 Blk-2	T. D. 1250	Dry
Hoffman-Page	1-Butler	H&TC	Sec-28 Blk-2	T. D. 1316	Dry
Root-Fehl-Belva	1-Goode	BBB&C	Sec-56	T. D. 3968	Dry
Tex Wa et al	1-McGee et al.	H&TC	Sec-29 Blk-2	T. D. 1350	Dry
Outlaw et al	1-Williams	McLennon Co. Sch. Ld.	Lot-18	T. D. 1507	Dry

Erath County

Lone Star	1-Cage	Frey	Sec-16	T. D. 4027	Dry
Peters et al	3-Barton	Kelly		3260-3265	17½M

Jack County

Joe Ant	1-Riley	Hughson		3140-3150	98
Texas et al	2-Shanafelt	Hughson		3108-3127	65
F. H. E. Oil Co.	1-Leffel	Hughson		T. D. 3208	Dry
Kaiser-Duffey	1-Jones Est.	Nabin		T. D. 2680	Dry

Jones County

Roeser-Pendleton	5-Grayson	T&P	Sec-13 Blk-19	T. D. 2745	Dry
Texas	3-Camp	T&P	Sec-13 Blk-19	T. D. 3029	Dry
Clark et al	1-Herman	T&P	Sec-52 Blk-18	2536-2550	8
Humble	2-Bickley	T&P	Sec-50 Blk-18	2460-2468	64

Shackleford County

Cranfill-Reynolds	4-Moberly	T&P	Sec-48 Blk-11	1046-1050	15
Grisham-Hunter	3-Davis	T&P	Sec-20 Blk-13	1537-1651	12
Manning et al	5-Reynolds	T&P	Sec-11 Blk-11	917-929	5
Tannehill	24-Newell	T&P	Sec-11 Blk-11	936-938	40
Sterling	4-Whitney	Miller		T. D. 605	Dry
Cranfill-Reynolds	2-Flippen	T&P	Sec-35 Blk-11	T. D. 985	Dry
Big States	12-Webb et al.	T&P	Sec-17 Blk-11	T. D. 1275	Dry
Big States	1-Spear Est.	BAL	Sec-1	T. D. 1065	Dry
Big States	11-Webb et al.	T&P	Sec-17 Blk-11	T. D. 1300	Dry
Swallow	2-Reynolds	T&P	Sec-25 Blk-11	T. D. 1270	Dry

Stephens County

Lone Star	4-Elliott	T&P	Sec-55 Blk-7	T. D. 3893	Dry
Lone Star	1-Calloway	SP	Sec-461	2153-2159	2M

Palo Pinto County

Comanche	1-Smith	TE&L	Sec-1727	T. D. 1600	Dry

Taylor County

Mid-Continent	1-Coody	Guadalupe Co. Sch. Ld.	Sec-120 Blk-28	T. D. 2538	Dry

NORTH TEXAS

Archer County

Humble	4-Hamilton	BBB&C		1137-1142	15
Mitchell	1-Kunkel	McCoy	Blk-4	1122-1142	18
Petroleum Prod.	1-Kunkel	BBB&C	Sec-3	1168-1186	12
Williams et al	2-Kunkel	McCoy	Blk-4	1128-1132	90
Continental	1-Kemp et al.	KWVFL	Sec-15 Blk-4	T. D. 1841	Dry
Cullum-Thomas-Anderson	1-Lanster	BBB&C	Sec-3	T. D. 1129	Dry
Omohundro	1-Roberts	ATNCL	Sec-100 Blk-13	T. D. 1608	Dry

Baylor County

Ridgeway	1-Turveville	Bryan	Sec-28	T. D. 1600	Dry

Clay County

Merrick-Belcher	5-Bates et al.	PCSL	Blk-6	T. D. 1782	Dry
Merrick-Belcher	4-Bates et al.	PCSL	Blk-6	1758-1764	12

Foard County

Shell	1-Thompson	Thompson		2045-2050	67

Montague County

Farlyn	2-Cunningham	Norten		T. D. 1364	10M

Wichita County

Producers Drlg. et al.	1-Allen et al.	KWFVL	Blk-28	1745-1759	25
Hunter	1-Waggoner Bros.	GC&SF	Sec-1	T. D. 1922	Dry
Rose	1-Munger	KWVFL	Sec-24 Blk-10	T. D. 1852	Dry
Ward	1-Powell	H&GN	Sec-21	T. D. 2013	Dry

Wilbarger County

McEmery-Whittiker	1-Waggoner	H&TC	Sec-38 Blk-3	T. D. 1700	Dry
Staley-Wynne	X1-Waggoner	H&TC	Sec-10 Blk-4	T. D. 2000	Dry
Waggoner	J10-Waggoner	H&TC	Sec-25 Blk-4	T. D. 2461	Dry
Apple-Brandenberry	3-Waggoner	H&TC	Sec-32 Blk-4	2315-2337	52
Texas	E21-Waggoner	H&TC	Sec-25 Blk-4	T. D. 1843	80
Waggoner	2-Waggoner	H&TC	Sec-18 Blk-4	2394-2451	85

Young County

Rannell	6-Jacks	YCSL	Blk-23	534-550	5
Trinity et al	1-Barrett	Sergeant		575-589	20
Carpenter	9-Barrett	Sergeant		T. D. 648	Dry
Pennell	6-Calvin	Rohus		T. D. 585	Dry
Biggs	1-McClure	TE&L	Sec-1949	T. D. 539	Dry
Roamer	1-McClatchey	TE&L	Sec-171	T. D. 1151	Dry
Smith-Moran	1-Hoffman	Bennett		T. D. 685	Dry

PANHANDLE

Carson County

Independent	1-Powers	H&GN	Sec-248 Blk-B-2	3245-3250	5M
Gulf Prod	1-Garner	Garner	Sec-106 Blk-4	3170-3195	85
Osborne et al	2-Peruval	I&GN	Sec-199 Blk-3	3245-3250	480
Magnolia	7-Fee	I&GN	Sec-91 Blk-4	2990-3000	70
Gulf Prod	7-Noel	I&GN	Sec-198 Blk-3	3209-3225	122
Danciger	2-Moore	I&GN	Sec-125 Blk-4	3025-3050	180

Gray County

Danciger	3-Beck	H&GN	Sec-28 Blk B-2	2881-2887	1080
Humphreys et al.	1-Back	H&GN	Sec-23 Blk-25	2839-2880	3M
McMan	5-Palmer	H&GN	Sec-31 Blk B-2	2885-2937	500
Phillips	2-Jackson	H&GN	Sec-88 Blk B-2	2850-2870	50
Shamrock et al	1-Clayton	H&GN	Sec-50 Blk-25	2731-2985	2M
Texas	2-Combs et al.	I&GN	Sec-36 Blk-3	2885-2940	265 & 8M
Texas	6-Williams	ACH&B	Sec-6 Blk-1	2680-2697	650
Texas	3-Shaw	ACH&B	Sec-5 Blk-1	2680-2700	1314 & 7M
Texas	4-Combs et al.	I&GN	Sec-36 Blk-3	2829-2940	266
Texas	7-Chapman	H&GN	Sec-50 Blk-25	2905-2910	72
Texas	12-Bowers	H&GN	Sec-63 Blk-B-2	3153-3155	100
Phillips	8-Palmer	H&GN	Sec-31 Blk B-2	2870-2885	1800
McMan	4-Palmer	H&GN	Sec-31 Blk B-2	2916-2905	335
Shamrock et al	2-Clayton	H&GN	Sec-50 Blk-25	T. D. 3095	Dry

Hutchinson County

Gulf Prod	45-Dial	H&TC	Sec-26 Blk-47	2845-2930	15
Amarillo	2-Ingerton	H&TC	Sec-41 Blk-47	3147-3154	11M
Phillips	1-Cheatham et al.	A&B	Sec-38 Blk-Y	3032-3040	1450
Rock Creek	3-Johnson	A&B	Sec-28 Blk-Y	2848-2930	300

Wheeler County

Cosmos Carbon.	1-Hicks	H&GN	Sec-52 Blk-17	1692-1770	39M
Mirchison-Fain	2-Close	H&GN	Sec-82 Blk-23	1455-1685	65M
Mudge	3-Hicks	H&GN	Sec-52 Blk-17	1840-1861	30M
Lone Star	3-Burcham	H&GN	Sec-91 Blk-17	T. D. 1985	Dry

WEST TEXAS

Fisher County

Cranfill-Reynolds	1-Flannigan	BBB&C	Sec-200 Blk-1	3117-3120	330

Glasscock County

Kirby et al	1-Baker	T&P	Sec-23 Blk-33	2260-2268	350
Penn	1-Shaffer	T&P	Sec-4 Blk-32	T. D. 2580	Dry

Howard County

Moody	20-Roberts	W&NW	Sec-137 Blk-29	T. D. 1400	Dry
American Maracaibo	2-Settles	T&P	Sec-6 Blk-32	T. D. 4393	Dry
Amerada	12-Roberts	W&NW	Sec-128 Blk-29	1308-1340	33
Humble	4-Clay	W&NW	Sec-138 Blk-29	1836-1851	135
Moody	22-Roberts	W&NW	Sec-137 Blk-29	1358-1399	100
Moody	16-Roberts	W&NW	Sec-137 Blk-29	1325-1417	50
Merrick-Bristow	9-Roberts	W&NW	Sec-137 Blk-29	1397-1406	10
Gulf Prod	7-Clay	W&NW	Sec-155 Blk-29	1861-1865	160
Merrick-Bristow	11-Hooks	W&NW	Sec-140 Blk-29	1868-1947	8
Owen-Sloan	1-Roberts	W&NW	Sec-136 Blk-29	1926-1928	35
Ward	11-Roberts	W&NW	Sec-137 Blk-29	1383-1391	225

Irion County

Pecos Valley	2-Stocks	H&TC	Sec-19 Blk-3	T. D. 1600	Dry
Fox et al	1-Tankersley	Willig	Sec-712	1332-1335	165

Pecos County

Shell	1-Univ.	Univ.	Sec-30 Blk-16	1636-1642	1663
Moncrief	1-Univ.	Univ.	Sec-13 Blk-18	1535-1715	40
Shell	1-Univ.	Univ.	Sec-31 Blk-16	940-950 (50 Mins.)	450
Landreth Prod.	1-Univ.	Univ.	Sec-13 Blk-18	T. D. 950	66½M
Marland	1-Univ.	Univ.	Sec-10 Blk-17	1852-1857	3¾M
Phillips	3-Ramsey	TC	Sec-17 Blk-194	1598-1737	152
Mid-Kansas & Transc.	10-Yates	TC	Sec-32 Blk-194	1625-1680 (1 Hr.)	2960

Upton County

Dixie	30-Burleson	Midiven	Sec-2	2035-2045 (9 Hrs.)	155
Pure	1-Hughes	Tees	Sec-4	2140-2264	215

Winkler County

Southern Crude	T89L2-Hendricks	PSL	Sec-15 Blk B-12	2793-2801 (1 Hr.)	144
Marland	1-Morton	PSL	Sec-16 Blk B-12	3002-3003	600
Humble	C14-Hendricks	PSL	Sec-10 Blk B-12	2763-2864 (1 Hr.)	260
Humble	C13-Hendricks	PSL	Sec-10 Blk B-12	2865-2890	8500
American Maracaibo	B2-Hendricks	PSL	Sec-28 Blk B-2	2725-3416	50
Southern Crude	T88CX4-Hendricks	PSL	Sec-21 Blk-26	2780-2794	560
Southern Crude	T88CX2-Hendricks	PSL	Sec-21 Blk-26	2903-3000	580
Skelly	4-Daugherty	PSL	Sec-22 Blk-26	2785-2832	130
Skelly	3-Daugherty	PSL	Sec-22 Blk-26	2586-2740	355

Completions in North Louisiana and Arkansas, Week Ended September 26, 1929

Louisiana—Bienville Parish

Company	Well	Location	Depth	Yield
W. G. Gray, Trustee	Snyder No. 1	15-16-6W	3808	dry, aband.

Bossier Parish

Delaware La. Dev. Co.	Bolinger No. 4	38-23-11	3170	50 bbls.

Caddo Parish

Oil City Oil Co	Curtis No. 6	10-20-16	2393	10 bbls.

La Salle Parish

Tunica Pet. Co	L. & A. No. 49	17-7-2E	822	25 bbls.

Morehouse Parish

S. D. Hunter	Allison No. 10	18-20-5E	2202	3M gas

Ouachita Parish

Ark. La. Pipe Line Co.	McEnery No. 3	28-19-4E	2198	4M gas
Austin & Jordan	Wall No. 2	11-18-3E	2228	2M gas
Southern Carbon Co.	Fairbanks No. 13	4-19-4E	2156	5M gas

Red River Parish

Company	Well	Location	Depth	Yield
Joe Danciger	Pickett No. 1	26-13-11	855	junked, aband.
J. H. Askew	Lockett No. 1	32-13-10	2820	15 bbls.

Webster Parish

W. M. Kemp et al.	R. D. Campbell No. 1	11-22-10	2650	junked, aband.

East Texas—Harrison County

McRitchie et al	Dean No. 1	Craft HRS	2804	salt water, abd

Panola County

Magnolia Pet. Co	C. G. Steele No. 16	B. C. Jordan HRS	2292	¾M gas
Paul C. Warren	F. M. McNeese No. 1	A. Booker HRS	HRS	lcn. abd, will not drill

Arkansas—Ouachita County

E. M. Jones	Wilson A-1	26-15-18	3378	junked, abnd.

Union County

McDonald Bros	Mayfield No. 1	29-19-15	2200	dry, aband.
Lion O. R. Co	Flenniken A-8	10-16-15	2396	15 bbls.

Looking north from the Oklahoma City field toward the business section

Ten New Wells Likely at Oklahoma City By Time Proration Is Lifted

By William F. Lowe
N. P. N. STAFF WRITER

TULSA, Sept. 30

NOW that the Oklahoma City pool is shut in, the question arises as to what it will do when it comes out from under the covers. Reveille is to sound at 7 a.m., on the morning of Oct. 12, and if the wells due in on that date, or shortly after, meet the average rate of expectancy in the area, the field will hit the deck with a bang.

The resulting waves on the oil sea may be a bit high and the navigation slightly difficult, especially since the Texas Panhandle takes the lid off Oct. 1 and California has decided to go to court. But the little matter of a rough sea won't make any difference to Oklahoma City, for they are too busy making a salt water sea of their own out of the supply coming from some of their wells.

There are only five producing wells making water in the City pool, but they are doing a beautiful job. If allowed to flow wide open, which they are not, they would probably turn out around 10,000 barrels of high grade salt water every day. The water content of these wells is on the increase yet they are all good producers, having a total daily average of over 11,000 barrels of oil.

One of the newest wells to be brought in, the Cromwell-Franklin No. 1 Trosper Park, C SE NW 13-11-3, is already cutting 17 per cent, which is a distinct surprise considering its location at the north end of the pool. The other four water wells, I.T.I.O.-Foster No. 1 S Bodine 30-12-2, Kuhlhoff-Henning No. 1 24-11-3, Oklahoma City No. 1 (discovery well) 24-11-3, and the Sinclair Oil & Gas Co. No. 1 Stamper, 30-11-2, are all on the south end.

None of the wells producing from the detrital zone, of which there are four, is showing any water. It is the Siliceous lime, or deepest pay, wells that are causing considerable conjecture as to how long it will be before other properties are affected by water intrusion. Checking the location of the above wells on the accompanying map, the casual observer would at once draw the conclusion that edge water was making an early entry into the field. The showing of water in the newest well serves to strengthen this conclusion, but when the known lens condition of the producing horizon is taken into consideration, there seems some reason for doubting the edge theory.

All of the water wells began cutting shortly after completion, while others that have been in for nearly as long a period, have not yet shown a tendency to put anything but oil into the tanks. This fact has led producers to believe that certain lenses of the lime are water bearing and others are not. Be that as it may, it is certainly true that these lenses will serve to retard water incursion in the heart of the field for some time.

At the present time, engineers are worrying about as much over what to do with the water they already have, as they are concerning the possible future supply. Getting rid of 10,000 barrels of salt water every day is a problem of major proportions, and though no prizes have been offered, the companies involved would gladly pass over a full loving cup for a solution.

When the order to shut down finally went into effect on Sept. 12, the field had just scored a new peak of 67,507 barrels for the previous 24 hours. On that date there were 16 wells producing, half of which were under back pressures ranging from 100 to 1900 pounds.

Since that time one new well, the Hall-Briscoe, No. 1 Shaffer NE SE SE SE of 14-11-3W, blew in at a total depth of 6330, and made 4985 barrels the first 17 hours. It might very easily add 6000 barrels to the total of the field.

THERE is only one other well, the Coline Oil Co., No. 1 Foster C NE SW of 25-11-3W, that is ready to bail in at this time, and if it runs true to the form of others in the same area, should add 5000 more barrels.

Of the other 115 or so drilling operations in the field, ten are below 6000 feet and several of these are ready to set 7-inch casing. All 10 should be in before Oct. 12 unless some of these tough fishing jobs

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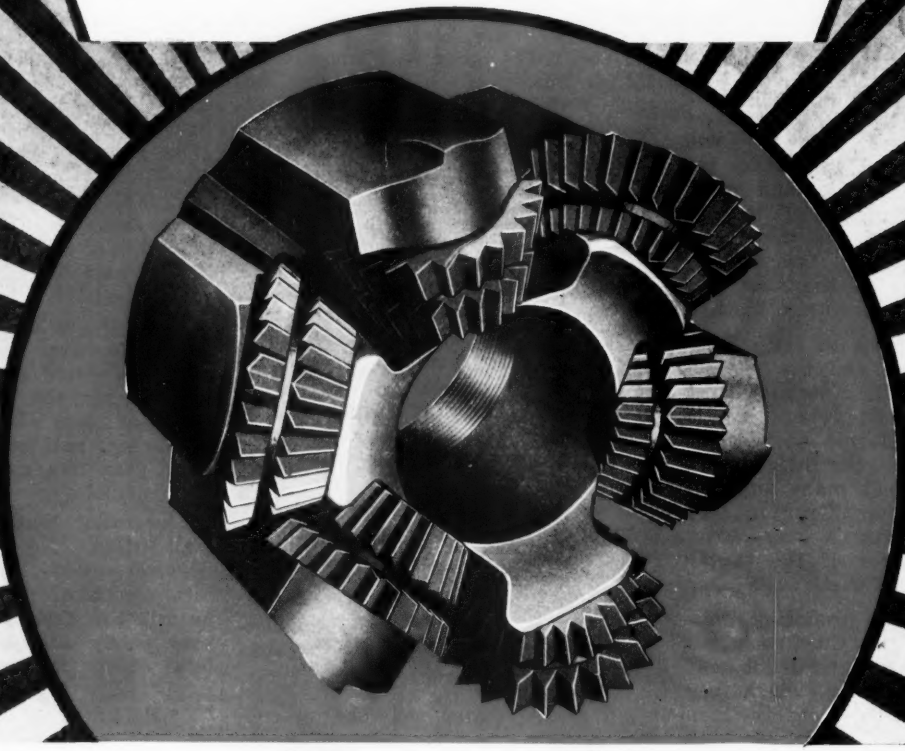
are acknowledged leaders in meeting this requirement of the industry.



HUGHES TOOL COMPANY

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HOUSTON, TEXAS

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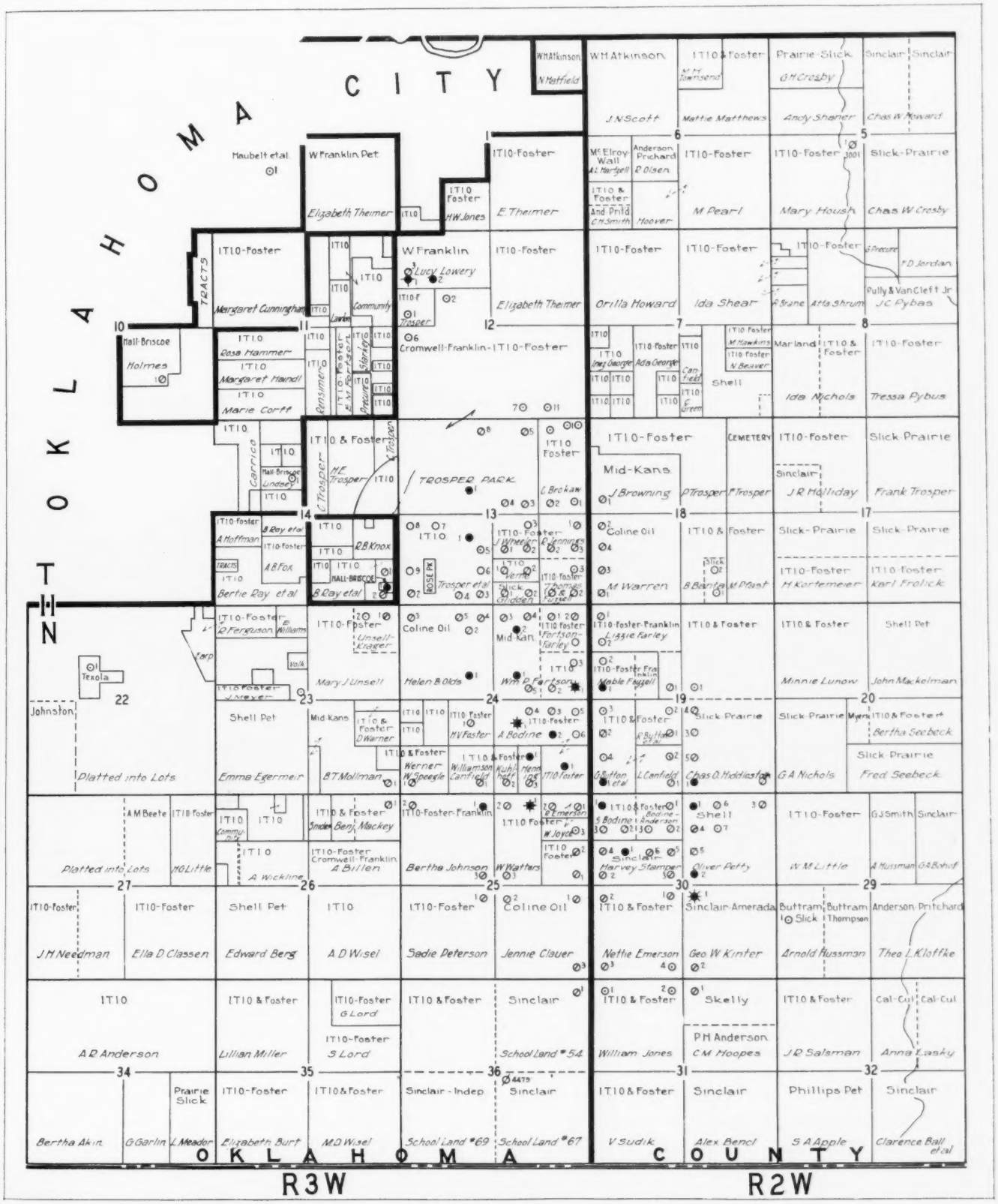
New York City, N.Y.

characteristic of deep holes temporarily halt drilling. There are 12 other wells drilling at 5000 feet or deeper, eight of which have set, or are ready to run, the 9-inch casing. They too, have a show of being completed in the next 16 days but the chances of their being able to make it are rather slim.

Drilling procedure is slow after the 5000-foot level is passed and the crew that averages 35 feet every 24 hours could demand shorter hours, more pay, and a five day week and come close to getting it. Especially slow is progress where the hole has to be loaded against the big gas pressures. Nine-inch casing is usually set around 5200 feet and 7-inch somewhere between 6100 and 6250 feet, both strings being cemented.

The smaller pipe is the gas string and great care is taken to be assured of a shut-off with the cement. Seven days is the usual setting time for both jobs, a somewhat longer period than in other fields, but this delay makes for fewer recementing operations and better shut-offs.

After the setting period on the 7-inch casing, the plug is carefully drilled, but the pays are not tapped very heavily with the tools. At the



Oklahoma City Field

first sign of a color in the rotary mud the tools are pulled and the well is bailed in. It is not always necessary to do any bailing for the wells have been known to blow in through the cement plug and cause no end of a mess.

The shut-down agreement states that all wells that start drilling prior to Jan. 1, 1930, shall be shut in for 30 days after the setting of the last string of pipe, or after a 24 hour test has been made. This stipulation eliminates the possibility of a flood of oil from new producers when the lid is lifted and brings all of the present drilling wells under the 30 day rule.

Estimates of this date concerning the potential production of the Oklahoma City pool as of Oct. 12, vary between 65,000 and 75,000 barrels. By the end of that month, as the wells that are now below 6000 feet are taken off probation, the peak should easily be well over the 100,000 mark.

December 1 will probably see at least 15 more wells contributing a daily average of 5000 barrels apiece, so it is not hard to imagine the first day of 1930 showing a total daily average for the pool of somewhere in the neighborhood of 175,000 barrels unless further restrictive measures are put into effect.

The Fish Story Season Being Open—Here Is a Starter

TULSA

THE fishing season is about over, but the season of fish stories is just opening for those of us who stayed home to earn another payment on the car. As the tales grow in size and number, one's faith in Shakespeare's judgment is considerably shaken. He said something about conscience making cowards of us all. However, that statement covers a lot of territory. A returned fisherman is not afraid to tell anything and he has no conscience, so he needs a whole new classification.

A fishing trip seems to stimulate the imagination more than any other sport—golf for instance. The story told by the dub opponent when he holes out and claims a five, is a shock, but it lacks the finish and color of a good old fashioned Isaac Walton League lie. The latter would be full of such things as tackle, bait and boats, to say nothing about the interesting details concerning the family life of the fish itself. They make good stories but the alibis are usually weak. Herewith we present one with a photograph to back it up.

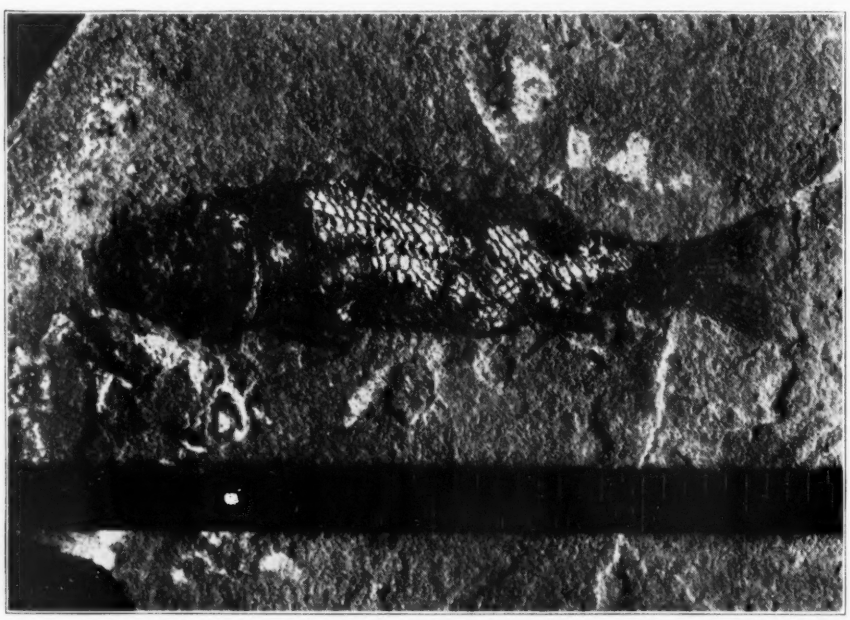
About one hundred million years ago a warm, easy going sea that was swarming with a lot of funny looking fish, covered a goodly portion of the Southwest from the Gulf Coast to Colorado. In those days there were no humans sitting around under the palm trees, or their equivalent, casting a lazy line into the tropical waters for a shore dinner. Perhaps it's just as well, for if the hook had been taken by an Ichthyosaur, one of those playful 40-foot sea reptiles that were common at that time, somebody would have lost a leg—and it wouldn't have been Ichthy because he didn't have any.

Well anyway, in these waters lived a family of ganoid fish by the name of Lepidotus Notopterus of which the one illustrated was a member. This family was just the ordinary east side type, and not at all like the snooty Park Avenue ones that were considerably larger. But they had one thing in common with their betters, in that they had no bones to speak of. Even in this day and age that is considered quite an asset for a fish. Still, he was a tough customer for his scales were thick and enameled which added to his personal beauty, but would make plenty work for a modern cook. These scales later became a shroud as he was buried in the oozes of the sea floor and it is to them we owe the pleasure of being able to show him off today.

The spot that he chose for a last resting place afterwards became a part of the mesa country in New Mexico, and the site of the grave is beautiful with a view that alone is worth the trip over. Fishermen would not give it a second glance for there is no water in the neighborhood, but that is where they would be making a serious error. To these misguided souls it would be more fun to hang expensive flies on the trees of a mountain stream than to be sure of getting some fish by knocking out a mess from a Jurasic shale. The shale variety may not be good with lemon but they will bring more Oh's and Ah's out of the folks back home than a whole string of trout, or trout stories.

That goes for geologists too. Lowell Kessler, field geologist of the Midwest Refining Company, hammered out the first speciman from the Todilto shale of the La Plata series near Tucumcari, and got immediate action in the home office. R. C. Coffin, chief geologist of the same company left Denver, and C. Max Bauer, who occupied the same position with the Midwest Exploration Co., left Amarillo, on business. Mr. Bauer mounted the ones he got. In Tulsa the other day, C. A. Yoakam, chief geologist of the Sinclair Oil and Gas Company, and Fred Bush, of the same company and department, were all for starting an expedition to get the rest of the Lepidotus family, even to the third or fourth generation. Their urge was prompted by only a photograph at that.

To the uninitiated, and to those nimrods with a pole and reel, the idea of anyone wanting a dead fish is ridiculous. It all depends on how long it has been dead. This particular kind of fish are not worth any more at the corner market than a channel cat that was caught last week, for they are both antiques. But any paleontologist would gladly pay five dollars a copy for the near relatives of the one illustrated. He is only four inches long but he's worth $1.25 an inch, and that's important money. At that rate, it seems like we ought to go back and get a couple of Ichthyosaurs. We could then afford to go on a real fishing trip.



Here is the evidence: old Lepidotus Notopterus

Influence of Delayed Development On Ultimate Recovery

By Lester C. Uren

Professor of Petroleum Engineering, University of California

MAXIMUM ultimate recovery of petroleum from an oil field by ordinary methods of flowing and pumping, is secured only by systematic and timely drilling of wells, thus deriving the greatest benefit from the relatively high initial gas pressure. The time at which a well is drilled, in terms of surrounding development, determines to an important degree the amount of oil that it will ultimately produce.

Delay of only a few months in off-setting a neighboring well may mean that 50 per cent or more of the potential production of the later-drilled well will be left in the sand, unrecoverable by ordinary methods. Probably no single factor is of greater importance in determining the efficiency of recovery by ordinary well-production methods.

Maximum recovery of oil from a "pool" requires prompt and complete development of the entire oil-bearing area, once the discovery well has entered upon its productive life; and in areas where there has been considerable delay in bringing the land to complete development, we may expect to find a high percentage of residual oil. The operator who fails to maintain the pace set by his neighbors, or who is unable to finance the rapid development of his property, not only loses some of his oil to his more active neighbors, but also leaves in the sand oil which neither he nor his neighbors may secure; oil that is left in the sands gas-drained and without motivating force to bring it into the wells. The oil producer who merely protects his boundaries by off-setting neighboring line wells, leaving his interior locations to be leisurely drilled in later year, likewise suffers a loss of a large part of the potential production that his wells might have secured had the entire property been fully developed at an earlier date.

In the present article, data based on field and laboratory studies are offered, which prove conclusively that large quantities of oil are left in the reservoir sands, unrecoverable by ordinary methods of exploitation, when development of oil properties is extended over a prolonged period of time. The magnitude of the losses resulting from untimely development in certain fields is disclosed, experimental data bearing on such losses are reviewed and a method of estimating the unrecovered oil content of the sand is described.

Five Articles by Prof. Uren on Principles of Oil-Field Development

ONE of the most promising avenues leading toward more efficient exploitation of oil-producing properties in the present-day petroleum industry, is that which traverses the field of scientific and economic development practice.

The oil producer has been content to follow precedent in planning the development of his property: a precedent that was not founded on scientific drainage principles when originally conceived and applied, and which has obviously failed to secure economic results in many cases in its later application.

Believing that oil producers will be interested in a review of the principles of oil-field development as interpreted in terms of the recent advance in knowledge of drainage conditions, NATIONAL PETROLEUM NEWS offers its readers a series of five articles by Professor L. C. Uren of the University of California, on different phases of this subject.

In addition to the present article, emphasizing the importance of timeliness in drilling of wells, Professor Uren will discuss in future articles in this series, the subjects of well-spacing, economic rate of development of oil properties, competitive development practice and unit operation of oil fields.

Drainage Principles and Their Relation to Timeliness in Development

The principles governing the drainage of oil from its reservoir sands are now known and understood by up-to-date oil producers, and the role of natural gas in expelling oil from the sands is generally appreciated. Natural gas, dissolved and occluded in the oil under pressure, is the principal motivating agent causing the oil to flow from the sands into the wells. The productivity of the wells diminishes as the gas pressure declines. Without gas pressure, production of oil through wells is dependent upon the relatively slow and inefficient processes of gravity seepage and edgewater flooding.

As oil is drained from the sands, that which is left settles to the lower portions of the productive stratum, under the influence of gravity, leaving gas-filled "voids" in the upper part of the sand, immediately beneath the cap rock. Inter-communicating, oil-drained spaces of this character, above the general surface of oil in the sand, permit the gas to migrate freely over great distances to the well outlets.

Exhaustion of gas pressure may thus proceed over wide areas, though actual movement of oil may be confined to drainage areas about the wells but a few hundred feet in radius. The radius of gas drainage is many times that over which oil may flow under a given pressure.

When a well is drilled in virgin territory, the gas pressure and oil content of which has not been influenced by previous drilling, the initial production is high, but the rate of flow declines rapidly as the gas is drained from the sands immediately about the well. After the first abrupt decline, the rate of decrease in flow becomes less rapid. Since the radius of oil drainage is proportional to the pressure, the wells develop their maximum oil-drainage radius soon after completion; then, as the field pressure declines, the oil-drainage radius decreases.

The volume of oil in the sand, thus brought within the drainage radius of a well, increases as the square of the radius of drainage, other factors being equal. Since there is less oil

within the influence of the well as the radius of drainage decreases, the rate of flow must necessarily decrease proportionately.

These relationships would require that the wells decline according to some logarithmic function, and most decline curves are found to fulfill this condition.

Gas Drainage of a Well

The radius of gas drainage of a well presents a different aspect. Gas drainage must occur chiefly through oil-drained channels in the sand. Another possible method is by diffusion through the oil, but drainage by this process is thought to be comparatively slow. Since the flow of gas is contingent upon the development of oil-drained channels through the sand, it follows that the radius of gas drainage must increase as the oil content of the sand decreases. We have just seen that the radius of oil drainage decreases as the well ages, but apparently the reverse is true of gas drainage up to a certain point. The distance over which gas may migrate through an open sand well to a well is, of course, also dependent upon pressure, and as the field pressure declines, the potential radius of gas drainage will also decrease. The influence of a well in drainage of gas is probably a minimum when the well is first completed, increasing at an ever decreasing rate to a maximum as oil drainage proceeds and while field pressure subsides.

Maximum field pressures are experienced only in wells drilled during the early life of a field. Escape of gas through these early wells leads to rapid decline of field pressure, so that later-drilled wells have a smaller initial and ultimate productions. The oil that these later-drilled wells fail to produce, in comparison with the recoveries effected by the earlier wells, is largely left in the sands, drained of its gas and unrecoverable by present commonly-used methods of production. If all the wells could be completed in time to receive the benefit of the higher field pressures, greater oil recoveries would unquestionably result. This is thus seen to be an important factor in determining the efficiency of the development program.

Field Studies of Losses Resulting from Delayed Development

In connection with litigation incidental to the efforts of the government to clear land titles in the California naval oil reserves and on lands withdrawn from entry pending passage of the Mineral Land Leasing Law of 1920, studies were made of the production records of more than 265 wells in an effort to determine the radius of influence of wells and the losses resulting from delayed development. The results of this study were made public in 1924 by the Committee on Public Lands of the U. S. Senate.[1]

1. "Hearings before the Committee on Public Lands and Surveys, U. S. Senate, 68th Congress, first session, pursuant to Senate Resolution 147, providing for an investigation of the subject of losses upon Naval Oil Reserves," Part 14, pages 3379-3402.

In this investigation, interest was centered upon small groups of wells and off-set couples one or two "locations" apart, in order to secure approximately uniform conditions permitting of legitimate comparison of production records. In some instances, the production records of individual isolated wells were available, offering a means of comparing the decline characteristics of wells in "influenced" and "uninfluenced" territory.

Complete well logs and histories were also provided for each well studied, and in the comparisons made, the only records used were those in which the productive sands were well defined and apparently continuous, and the source of the oil was definitely known. Wells displaying abnormal characteristics were rejected. In each case the ultimate productions of the wells were estimated by the production curve method. Comparison of the ultimate productions in nearly every case indicated smaller recoveries by the later-drilled wells.

THE graphs of Figures 1 and 2 present typical comparisons of off-set couples and small groups of wells within gas-drainage radius of each other. The inserts on the graphs show the arrangement and spacing of the wells and their estimated ultimate production. There was no other development in the immediate vicinity of either of the two groups of wells during the interval covered by the production records reproduced.

The oil sands are known to be continuous and reasonably uniform in thickness and texture, presenting no distrubing influences leading to inequalities in the production of individual wells. Wells in each group seem to be equally well situated structurally. The individual wells are far enough apart in most cases, to avoid interference effects in so far as oil drainage is concerned, and the differences in productivity displayed by the graphs are thought to be largely due to gas drainage. The wells and graphs are numbered in the order of their completion within each group.

Losses Through Delayed Drilling

The greater recoveries secured from the earlier-drilled wells stand out in striking contrast in comparison with the relatively small recoveries obtained from later-drilled wells. In Figure 1 for example, the first wells completed, Nos. 1 and 2, brought in during the same month, dominated the entire group, the productions of all other wells being comparatively small.

Why No. 1 should have been so much more productive than No. 2 in early life is not clear, though it is suspected that No. 2 was not drilled through the full depth of the productive sand as a result of mechanical difficulties during completion. Comparing Well No. 1 with its nearest neighbors, Nos. 3 and 4, it is shown (see inserted table of ultimate pro-

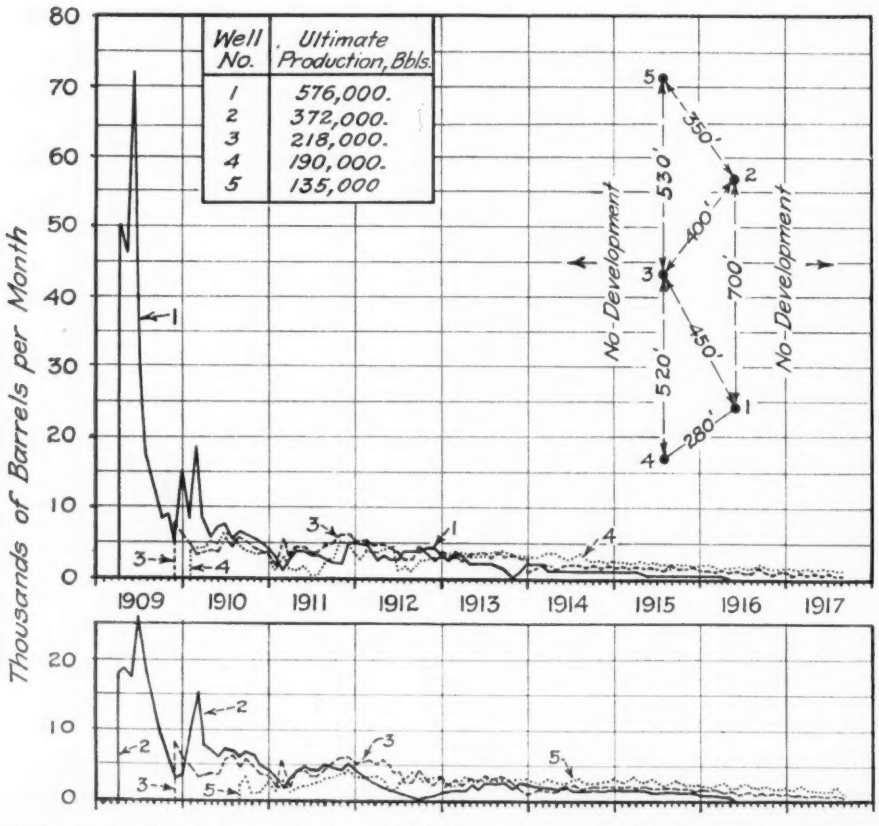


Fig. 1—Production graphs of an isolated group of wells in the Coalinga Field, Cal., showing advantage of earlier-drilled wells

ductions) that No. 3 suffered a loss of 358,000 barrels by a delay of only eight months in completion, and No. 4 lost an additional 28,000 barrels by two months further delay. No. 5, the smallest producer of the group, produced 237,000 barrels less than its nearest neighbor, No. 2, through a delay of 17 months in drilling, and No. 5 is less productive than No. 3, its next nearest neighbor, completed nine months earlier, though the production of Well No. 3 was influenced by gas drainage to both No. 1 and No. 2.

Again, in Figure 2, we have an isolated group of 11 wells in which the ultimate productions are in the order of the times of completion except in three instances—Numbers 3, 6 and 11—and the lack of conformity to the rule in these three instances can be readily explained on comparing their relative locations with other wells.

No. 3, for example, was a smaller well than No. 4, because it is located between two large earlier-drilled wells, while No. 4 was subject to drainage from only one direction. It is clear that the influence of Well No. 1 has extended over a distance of 580 feet (to No. 4) in only eight months.

No. 6 was an abnormally small producer for two reasons: it was drilled within the drainage radius of No. 1 and an entire year late, and its ultimate production was seriously curtailed by mechanical difficulties which prevented its operation for 17 months during early life.

No. 8 is as large a well as No. 7, because it has been influenced in only one direction, while No. 7 is within the radius of influence of both No. 1 and No. 4. No. 11, the latest-drilled well of the group, is more productive than either No. 10 or No. 9, because it was located in a more isolated position.

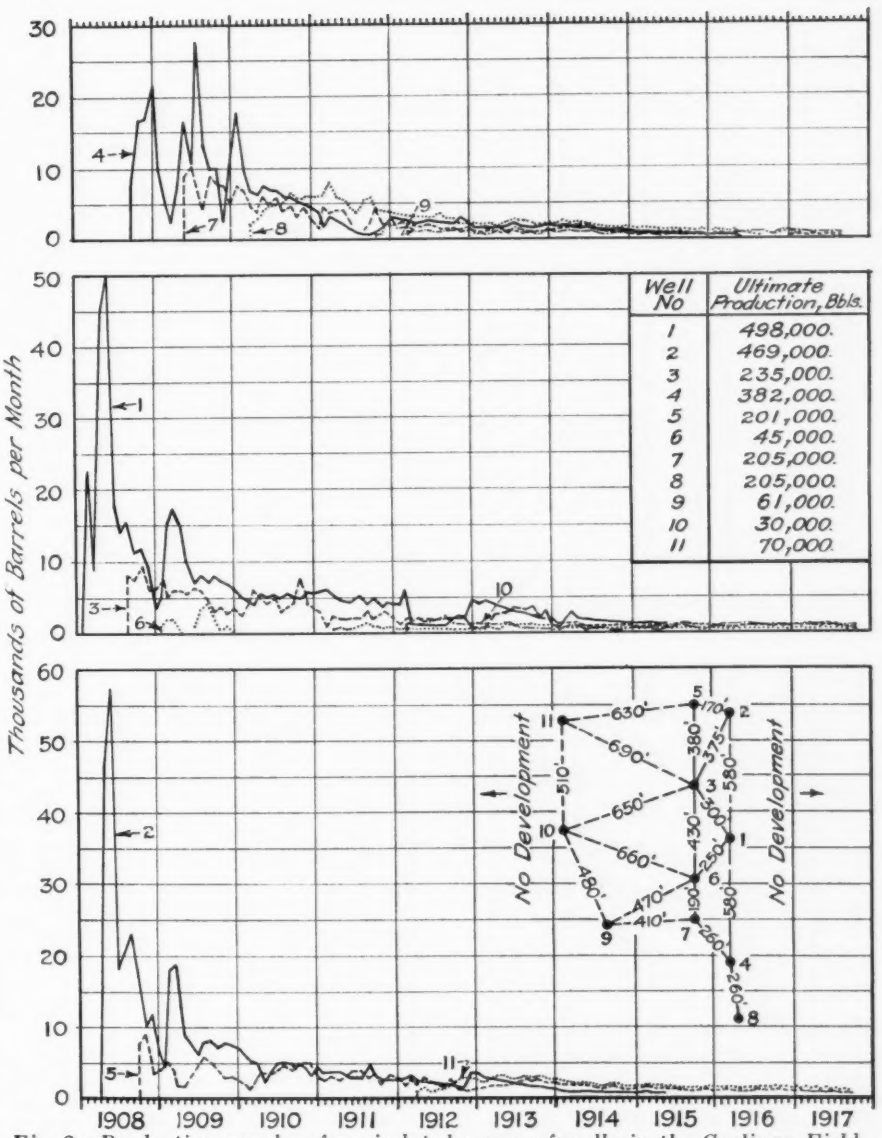


Fig. 2—Production graphs of an isolated group of wells in the Coalinga Field, Cal., showing advantage of earlier-drilled wells

Comparative Recoveries Per Well

It is interesting to note that the average production of wells 9, 10 and 11, is only 11 per cent of the average for wells 1 and 2, though they are situated about 650-feet from the nearest wells of the group: probably beyond the radius of serious oil drainage, but clearly within the radius of gas drainage.

This loss has been occasioned by a delay of about four years in drilling. The remaining 89 per cent of the oil that wells 9, 10 and 11 might have secured if drilled earlier, is probably still in the sands, unrecoverable because deprived of its gas through drainage to the earlier-drilled wells of the group.

The two groups of wells discussed above are typical of many others that were examined in the course of the field studies. Areas in two different fields were included in the investigation. While the results were widely variable when wells producing under different conditions were compared, the data are sufficiently similar to permit of drawing certain general conclusions which, it is thought, represent the results to be expected under average conditions in the Coalinga and Midway oil fields of California, in which the wells are situated.

The graphs of Figures 3 and 4 present these average results. Figure 3 shows the average loss of a later-drilled well for varying intervals of time between completions of earlier and later-drilled wells. The graph indicates, for example, that if a well is drilled within gas-drainage radius of another well, and is drilled, say, 20 months later, it will produce only 50 per cent as much oil, and if drilled, 45 months later, it will produce only 30 per cent as much oil as the earlier drilled well.

The production records used in compiling the data for this graph, were computed over a period of six years of simultaneous production—that is, for six years following the completion of the second well.

It is apparent, however, that the actual difference in production between two wells completed at different times will vary with the time over which the second-drilled well is assumed to produce. When the second well begins production, the "loss" as compared with the production of the earlier well up to date, is 100 per cent, but this percentage decreases as time passes.

Percentage Losses Are Shown

The graphs of Figure 4 show these percentage losses for different intervals of time between completions. An example or two will illustrate the application of these graphs. If there is a 24-month interval between the completion of two wells within gas-drainage radius of each other and the productions of the two wells be compared, say, 30 months after completion of the second well, the later-drilled well will have lost 60 per cent of its original potential production; that is, it will yield only 40 per cent of the volume of oil produced by the original well. If the interval between completions is only three months, the loss under the same conditions is reduced to 16 per cent.

It is apparent that the generalized data presented in Figs. 3 and 4 can-

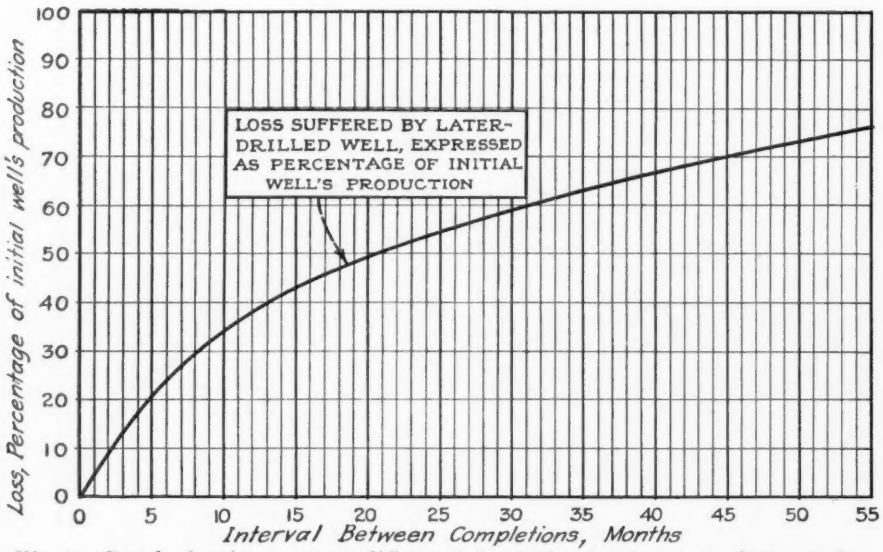


Fig. 3—Graph showing average difference in production between offset couples for varying time intervals between completions, San Joaquin Valley fields, Cal. Productions are computed for six years following completion of second well of couple

not be applied in other fields where the productive sands may be thicker and of different texture, or where the initial gas pressures and viscosity of the oil vary materially from those prevailing in the fields in which the studies were made; but they clearly indicate the importance of timely drilling, and serve to give a quantitative impression of the magnitude of the losses resulting through failure to achieve timeliness and uniformity in oil-field development.

They are also intended to suggest a possible method of analysis in making estimates of residual oil content of partially depleted oil lands.

Other independent studies of the extent of gas and oil drainage have been made by competent observers and have led to similar conclusions. In his testimony before the previously-mentioned Senatorial Committee,[1] the late Mr. F. B. Tough, formerly Chief of the Petroleum Division of the U. S. Bureau of Mines, gave the following information relative to drainage conditions in the Elk Hills (No. 1) Naval Reserve of California:

Tough's Report on Drainage

"In Reserve No. 1, the Standard Oil Co. of California drilled nine wells along the south boundary of Section 36, T.30 S., R.24 E. The average initial production of these nine wells was 3048 barrels daily, and the average daily production for the first year was 2424 barrels. The first of these wells was completed in August, 1920, and the last in September, 1921. The first well drilled in Sec. 1 on the Naval Reserve, off-setting the line wells of Section 36, was completed in October, 1921, 15 months after the completion of the first well on Sec. 36. The wells on Sec. 1 were drilled an average of 9 months later than the wells of Sec. 36, and instead of having an average initial production of 3048 barrels, the average was 283 barrels daily, and the daily average for the first year was 346 barrels.

"At the time the wells on Naval Reserve No. 1 were completed, the production for the wells on Sec. 36 had declined to the point that their average daily production was approximately the same as the average daily production of the wells on Sec. 1 for the first year, namely, 346 barrels. From the time the wells on Sec. 1 were completed, the average daily production of the two lines of wells has been approximately the same, and in Nov., 1923, 39 months after the completion of the first well on Sec. 36, and 25 months after the completion of the first well on Sec. 1, the average daily production of the two lines of wells was almost exactly the same.

"This means that the total production of wells on Sec. 36 will exceed that for wells on Sec. 1, by the amount that was produced by the former wells before the latter were completed. This difference amounts to 4,474,000 barrels. If the wells on Sec. 1 had been completed at the same time as those of Sec. 36, it is reasonable to assume that the Government would have received an equal share of the oil produced; therefore the delay in drilling accounts for a loss of one-half of the excess produced by the line wells of Sec. 36, which amounts to 2,237,000 barrels."

The writer agrees with Mr. Tough in his general conclusions, except that he believes that the earlier-drilled wells did not secure the 4,474,000 barrels that the later-drilled wells failed to produce, but rather, that this oil has been largely left in the sands, unrecoverable by the later-drilled wells due to gas-drainage through the earlier wells. The writer therefore believes that the over-all loss is nearer 100 per cent of 4,474,000 barrels than 50 per cent.

In discussing drainage losses before the same Senatorial Committee,[1] W. W. Cutler, Jr., stated that losses to the Government in both the No. 1 and No. 2 (California) Naval Reserves, prior to March, 1921, amounted to 22,200,000 barrels, about half of which is thought to be unrecoverable loss: i.e., oil left in the sands unrecoverable by present methods of extraction. In speaking further of the Buena Vista Hills (No. 2) Reserve, Cutler states that:

"One well, in one year, affects the pressure of a location for a well one location away (320 feet in the Buena Vista Hills). In two years, one well affects the pressure two locations away; and in five years, one row of wells would affect the pressure about half a mile away. This latter statement, of course, implies reduction in yield by gas-drainage only."

Maximum drainage effects, according to other qualified witnesses who

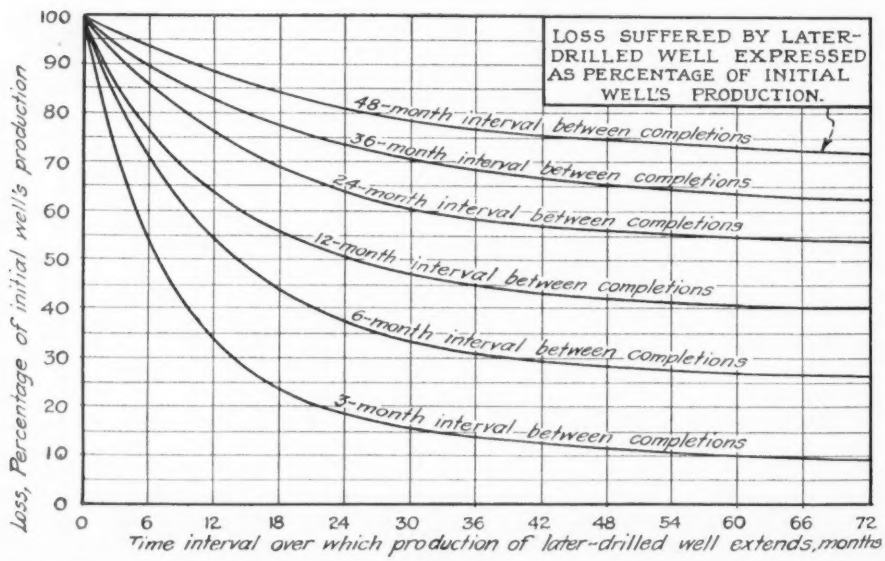
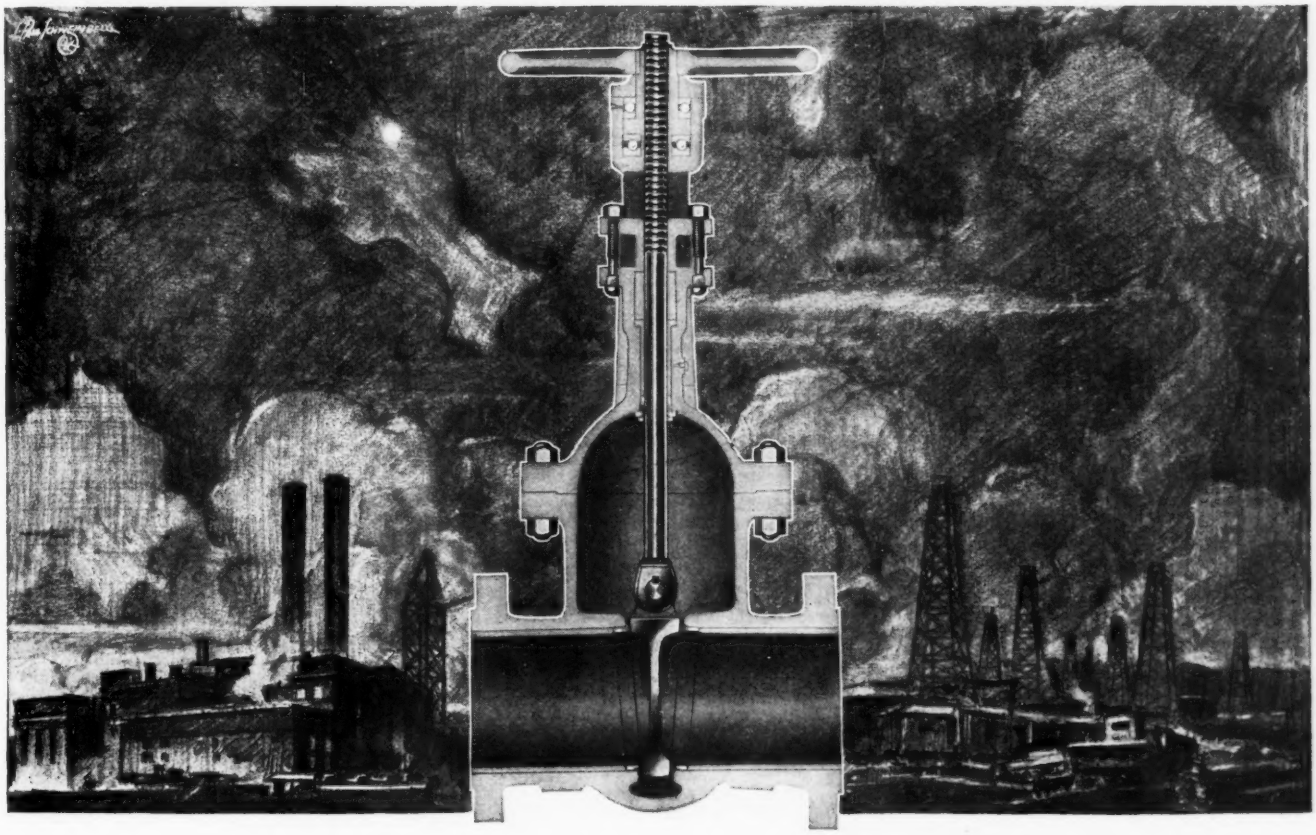


Fig. 4

Cutting down Replacements



5 *to* 1

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Natural Gasoline

New developments in the natural gasoline industry are reflected quickly in the news pages of National Petroleum News.

In addition to articles on new uses of the product and the economics of the industry, this publication presents many practical plant operating articles and special technical papers.

Others tell of current trends in plant building and equipment and of the wider utilization of the industry's products.

Here are 65 articles that have been published in National Petroleum News on natural gasoline since the first of last year:

1929

Gasoline replaces water as refluxing agent July 17, p. 76
Motor boats provide new market for natural gasoline July 3, p. 76
New gas analysis for natural gasoline perfected June 26, p. 31
New gas lift-gasoline plant hook-up fits needs of new pool June 19, p. 68
Fires, explosions, at natural gasoline plants June 5, p. 80
Present natural gasoline storage insufficient June 5, p. 86
More practical specifications planned May 29, p. 25
Fluctuations in price and demand minimized thru storage May 29, p. 29
Repressuring helps natural gasoline recovery May 29, p. 31
Sampling and gauging of natural gasoline May 22, p. 38
Economic position of natural gasoline May 22, p. 40
Storage at plants should hold 30 days' output May 22, p. 65
Wise building, product control, service, aid marketing May 22, p. 70
1928 output didn't grow as fast as refinery gasoline May 15, p. 34
California surplus competes in East May 8, p. 30
Cost comparison of auxiliary drives at plants Apr. 24, p. 40-f
Builds absorption plant in 28 days Apr. 24, p. 63
Increased demand puts price of natural above U. S. Motor Apr. 17, p. 36
New type scrubber installed in Santa Fe Springs Apr. 3, p. 66
Still most important of absorption plant March 6, p. 72
Surge tank feedings make stabilizer operations smooth Feb. 6, p. 70

1928

Solving absorption problems by analytical method Dec. 26, p. 34
Economic aspect of marketing natural gasoline by-products Dec. 5, p. 119
Manufacturing suggestions for California plants Nov. 28, p. 60
Place of natural gasoline in increasing volatility of motor fuels Nov. 28, p. 61
Cooling problems in natural gasoline plants Oct. 17, p. 99
Economics of operation in modern plants Oct. 17, p. 125
Economic effect of gas lift on gasoline industry Oct. 17, p. 130
The trend of gasoline plant design Oct. 17, p. 136
Use of controls to aid rectification Oct. 17, p. 138
Temperature effect on absorption efficiency Oct. 10, p. 64
N. G. A. adopts specifications for motor fuels Sept. 19, p. 31
Application of gas, gasoline analysis, to plant control Sept. 5, p. 79
N. G. A. adopts Reid vapor pressure test Aug. 29, p. 25
Naturaline Co. and Bureau of Standards study vapor pressure Aug. 22, p. 24
Natural gasoline demand depletes storage Aug. 8, p. 29
Narrow distillation range oils best for gas absorption Aug. 8, p. 54
Determining gasoline vapor pressure by A. S. T. M. distillation test Aug. 1, p. 58
Light fractions from stabilizer offer new opportunities July 25, p. 21
Seminole natural gasoline production to increase July 18, p. 19
All gasolines revised to include doctor test July 4, p. 37
Automatic control in natural gasoline plants June 27, p. 22
Plant makes 3 products from natural gasoline June 27, p. 30
Uses butane in repressuring June 13, p. 68
Four new gasoline plants in Panhandle June 13, p. 92
Doctor test for gasolines on July 1 June 6, p. 45
Gas lock, cause and remedy, found thru N. G. A. research May 30, p. 19
Natural gasoline industry advances May 23, p. 85
Volatility of natural gasoline May 23, p. 88
Gas lift and repressuring relations to natural gasoline May 23, p. 97
Recovery of natural gasoline at gas lift plants May 23, p. 98
Fractionation theory and practice in natural gasoline plants May 23, p. 102
Natural gasoline outlook encouraging May 23, p. 28
Laboratory method of determining gasoline vapor pressure May 16, p. 57
Double stabilizer makes all kinds gasoline Apr. 18, p. 54
Repressuring oil sands cause gasoline plants to close Apr. 11, p. 51
Effect of modern production methods on natural gasoline industry Apr. 4, p. 17
Natural gasoline maker and refiner should cooperate Apr. 4, p. 62
Natural gasoline industry must make new products Apr. 4, p. 74; Feb. 1, p. 49; Jan. 25, p. 17.
Absorption plant can use three pressures March 28, p. 58
Natural gasoline output increased 20% in 1927 March 21, p. 25
Natural gasoline must find wider use Jan. 4, p. 67

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National Petroleum News

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appeared before the Senatorial Committee, may extend over an area as great as 40 acres in the case of oil drainage, and one or two miles in the case of gas drainage.

Laboratory Studies of Losses Resulting From Delayed Development

The writer and his associates have conducted laboratory tests designed to determine quantitatively the oil losses resulting from delayed development.[2] These tests were secured with the aid of a pressure-drainage tank 5 by 8 by 3 feet in size, filled with oil-saturated sand, the oil being charged with dissolved gas under pressure. A photograph of the apparatus employed is reproduced in Figure 5. This "miniature oil-field" is equipped with small "wells" in the form of perforated pipes penetrating the sand body vertically. In this apparatus, which is a part of the drainage equipment used in the petroleum laboratories of the University of California, it is believed that all of the conditions attending the occurence of petroleum in the field have been duplicated in a small way.

In conducting an experiment with this apparatus, gas-saturated oil is charged into the sand-filled tank under a pressure of about 80 pounds per square inch. One or more "wells," as the particular experiment may require, are then opened and permitted to flow until the pressure within the tank is exhausted. Plotting the volumes of oil flowing from individual wells within constant time intervals, gives characteristic decline curves which are identical in form with those secured from field data.

An individual "well" will continue to flow for several hours, while pressure within the sand body is being gradually exhausted. During the early stages of flow, the "wells" at times "flow by heads" and in other ways behave like actual producing wells in oil fields.

In these experiments, the sand body was left undisturbed and successive experiments were conducted under identical pressure and temperature conditions.

Wells Produced to Exhaustion

The same oil was also used throughout the tests. The experiments consisted in producing individual "wells" and groups of "wells" arranged in characteristic patterns, to exhaustion, recording both ultimate production and variation in the rate of production. In some cases, wells were "brought in" at the same time and allowed to produce simultaneously. In other cases, one of the wells of a pair or of a group was "brought in" late, that is, after the others of the group had been producing for a time.

2. Uren, L. C., Davis, F. F., and Jarvis, W. L., "Advantages of Large Diameter Wells in Exploitation of Oil Fields," Bull. American Petroleum Institute, Vol. X, No. 2, Jan. 3, 1929, pp. 94-105.
Stevens, A. B., "A Study of the Effects of Well Spacing on the Ultimate Production of Petroleum from Sands," a thesis prepared under the supervision of the writer, University of California, May, 1927.

The "late" well invariably achieved a smaller ultimate recovery and seldom attained an initial rate of production in excess of what other wells of the group were producing at the time.

The graphs of Figure 6 present the results of a typical experiment in which two wells are competing for production. One well however, was started 10 minutes later than the first, and as a result, produces only 40 per cent as much oil as the earlier well. The total production of both wells is 90,050 cc., whereas an experiment performed under identical conditions, except that the two wells were started at the same time, resulted in the production of 109,000 cc. In other words, a delay of 10 minutes in "bringing in" the late well, resulted in an over-all loss of 18 per cent of the oil that might have been produced had the two wells been started together.

The graphs of Figure 7 present the results of another experiment in which three wells were competing for production, two of them being started together while the third was started five minutes late. The late well produced only 57 per cent of the average production for the two early wells. It will be observed that in both Figures 6 and 7, the late well attains an initial rate of production approximating the current rate of the earlier wells. This, as will be explained below, is a result of the lower field pressure prevailing at the time the late wells were brought into production.

Ultimate Production of Wells Increases With Field Pressure Existing At Time of Completion

It has been demonstrated both in the field and in the laboratory, that the initial rate of production of a well and its ultimate production, are a function of the prevailing field pressure at the time of completion. A well completed during the early productive life of a field and receiving the benefit of the higher field pressure characteristic of this period, has materially greater initial rate of production and ultimately produces a greater quantity of oil than it would have if completed at a later date when gas-drainage by other wells has reduced the field pressure to lower levels.

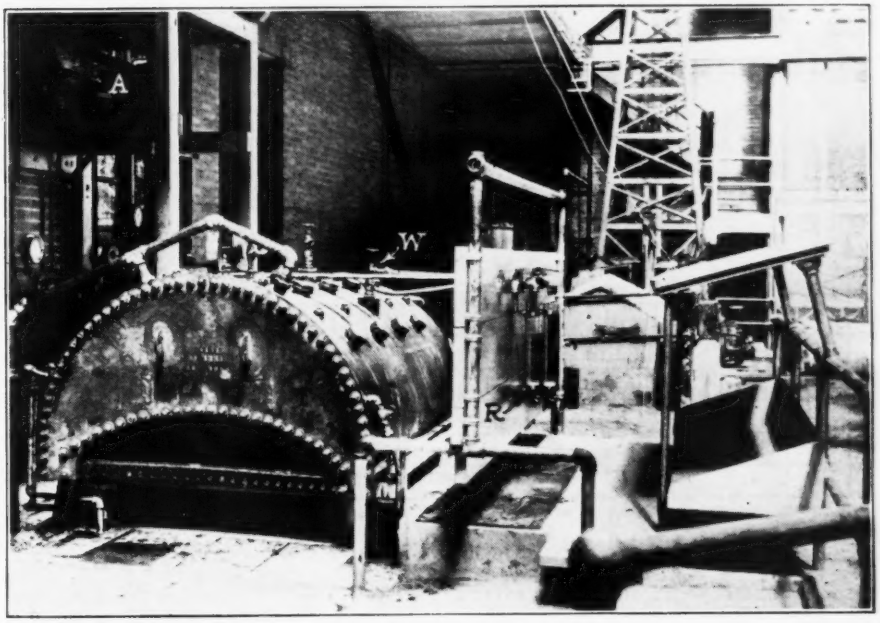


Fig. 5—Pressure-drainage apparatus, Petroleum Laboratory, University of California. A—Absorber; T—Sand-filled pressure tank; W—Miniature well; R—Graduated receiving tubes

Technologists of the U. S. Bureau of Mines[3] have conducted experiments in a pressure-drainage tube filled with oil-and-gas-saturated sand, the results of which demonstrate the influence of field pressure on ultimate recovery. The graph of Figure 8, which presents the results of these experiments, shows that under the conditions prevailing in these tests, an initial field pressure of say, 1000 pounds per square inch, results in the recovery of 42½ per cent of the original oil content of the sand, while an initial field pressure of 150 pounds permits of producing only 20 per cent.

In other words, a well completed during the early period of exploitation in a field where the gas pressure within the reservoir sand is 1000 pounds per square inch, may produce twice as much oil as would be possible if the well were drilled in a later period after gas drainage had reduced the field pressure to 150 pounds. The percentage recovery obtained under the ideal conditions presented in laboratory apparatus could not, of course, be expected in the field, but the same ratio of recovery under the two pressure conditions assumed, may reasonably be expected to hold true for field conditions.

3. R. Van A. Mills, J. Chalmers, and J. S. Desmond, "Oil Recovery Investigations of the Petroleum Experiment Station of the U. S. Bureau of Mines," American Institute of Mining & Metallurgical Engineers, Technical Publications No. 144, 1928.

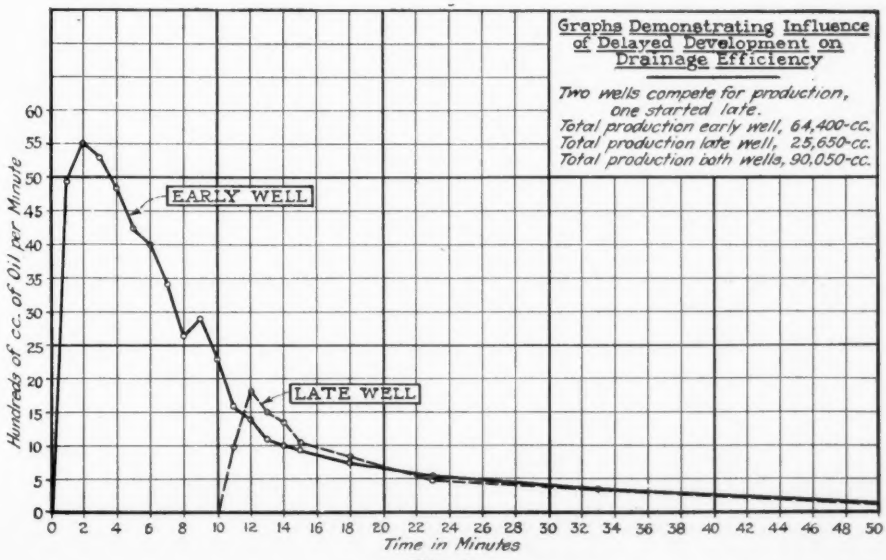

Graphs Demonstrating Influence of Delayed Development on Drainage Efficiency
Two wells compete for production, one started late.
Total production early well, 64,400-cc.
Total production late well, 25,650-cc.
Total production both wells, 90,050-cc.
EARLY WELL
LATE WELL
Hundreds of cc. of Oil per Minute
Time in Minutes
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50
0 5 10 15 20 25 30 35 40 45 50 55 60

Fig. 6

Economic Significance of Losses Due to Lack of Timeliness in Field Development

In the field studies referred to in an earlier section of this article, 101 of the wells studied were in the Coalinga field of California. The writer has determined the apparent total losses suffered by this group due to lack of timeliness in development, by comparison of the ultimate productions of the later-drilled wells with those realized by the initial wells of each couple or group.

The procedure in making these individual comparisons has been described in connection with the discussion of Figures 1 and 2. For the total group of 101 wells in the Coalinga field thus studied, there has been an apparent loss of nearly 27,000,000 barrels.

The wells included within this group are not unusual wells, and it is reasonable to assume that equally important losses have resulted in the

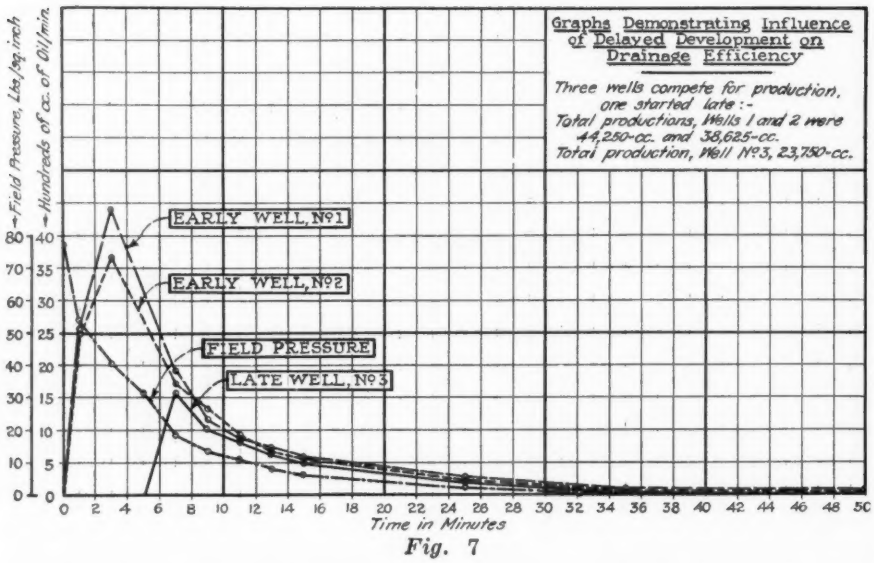

Graphs Demonstrating Influence of Delayed Development on Drainage Efficiency
Three wells compete for production, one started late :-
Total productions, Wells 1 and 2 were 44,250-cc. and 38,625-cc.
Total production, Well No3, 23,750-cc.
EARLY WELL, No1
EARLY WELL, No2
FIELD PRESSURE
LATE WELL, No3
← Field Pressure, Lbs./sq. inch
← Hundreds of cc. of Oil/min.
Time in Minutes

Fig. 7

case of other wells in the Coalinga field. In 1921 there were 1350 wells producing in the Coalinga field (many wells have been shut-in during more recent years). If it be assumed that the loss computed for the 101 wells of the group studied represents an average condition, and that the same ratio of losses to recoveries obtains elsewhere throughout the field, the total losses in the Coalinga field up to 1921 have been in excess of 364 million barrels.

Conditions in the Coalinga field are not unlike those in the Midway-Sunset, McKittrick, Lost Hills, Kern River and other San Joaquin Valley fields, where the greater part of California's productive acreage and producing wells are situated. If the same ratio of losses estimated for the Coalinga field can be regarded as applying in a general way to all the California fields, the total losses due to gas drainage resulting from untimely development, would be in excess of 2,700,000,000 barrels.

Actual losses must be even greater, for the above computations are based on wells already drilled and now producing, and do not take into account the great tracts of partially developed land, the greater part of which has undoubtedly been largely drained of its gas by the wells now producing and abandoned. In many areas, operators not wishing to exploit their lands intensively, due to their ownership of a sufficient supply of oil from other sources, have been content to merely drill a single row of off-set wells about their properties, while the interior locations have been left undrilled for many years after the early wells were completed.

There is little doubt that irregular field development of this character has resulted in extensive gas drainage of the undeveloped acreage, and that the areas as a whole, will yield only a small percentage of what might have been produced had full advantage been taken of the higher gas pressure which originally prevailed.

The losses resulting through untimely and unsystematic development can be avoided in large part, by adoption of the unit plan of field exploitation. If the competitive factors could be thus eliminated in oil field development, the irregularities resulting from efforts to protect boundaries and to secure early production at scattered points, would be avoided. Instead, a systematic plan of exploitation for an entire field might be consummated, which would permit of more gradual and thorough development, with maximum protection against gas-drainage of undrilled acreage. Perhaps the ideal condition would be attained if each well could be immediately shut-in when completed, and production deferred until all of the wells could start on their productive career simultaneously, under maximum field pressure.

Conclusions

Gas may drain over greater distances through oil-reservoir sands to well outlets, than petroleum. Production of oil from widely scattered wells or group of wells, therefore results in wide-spread gas drainage, though little or no oil drainage from areas remote from the wells may result. Wells drilled in gas-drained areas are capable of producing only a fraction of the oil that they might have secured if drilled before gas-drainage occurred. Delay in development as exemplified by producing only from boundary wells or widely scattered wells, is therefore productive of serious underground losses of oil during the period of primary exploitation. In certain examples discussed herein, delay of a few months or years in bringing properties to full development has resulted in more than half of the potentially recoverable oil being left in the sand.

The losses resulting from delayed development are of such magnitude that they are worthy of careful consideration by every oil producer. In planning the primary development of a property, those who are responsible for determination of the drilling program must balance the loss in ultimate recovery incurred by delay in prompt completion of wells, against the loss involved in provision of the additional equipment necessary for rapid development and the losses that might result from inopportune production and marketing of the oil, or the cost of long-period storage above ground.

The oil producer must balance these opposing factors, but he cannot do so until he knows the relative magnitude of each. We have, as yet, insufficient information of the sort presented in this article, to permit of predetermining with any degree of accuracy, the losses that result through delay in development.

The industry could profitably interest itself in an intensive study of this problem under the conditions presented in different fields. With information so secured, the development of fields to be discovered in future years could be more intelligently planned and consummated.

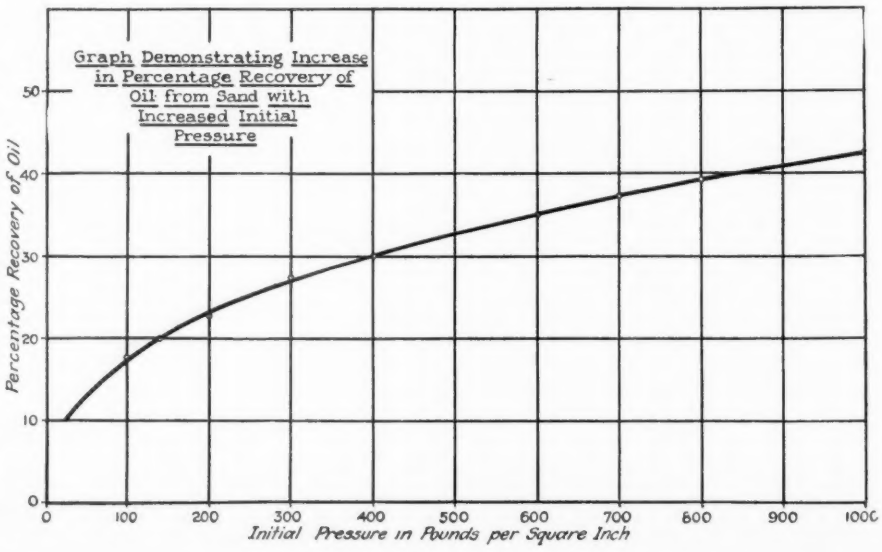

Graph Demonstrating Increase in Percentage Recovery of Oil from Sand with Increased Initial Pressure
Percentage Recovery of Oil
Initial Pressure in Pounds per Square Inch

Fig. 8—(After Mills, Chalmers and Desmond in Trans. A. I. M. & M. E.)

Rocky Mountain Producers Visit Turner Valley Field as Guests of Canadians

By A. J. Hazlett

CALGARY, Sept. 26

MEETINGS of the first international oil convention in Calgary, Alberta, Dominion of Canada, the last week, marks an important epoch in the petroleum history of the western hemisphere. Beginning with the opening session in the magnificent Pallister Hotel of the Canadian Pacific railroad, Thursday, September 19, a spirit of friendly cooperation marked all of the subsequent sessions, trips and social functions.

The forenoon session was called to order by the president of the newly organized Alberta Oil & Gas Association, W. S. Herron, a pioneer operator of the Turner Valley field and at the head of the Okalta Petroleum, Ltd., one of the successful producing companies at Turner Valley. In calling the meeting to order, Mr. Herron recalled the early history of the oil industry in Alberta stressing the difficulties of the first drilling operations in the Turner Valley field.

Speaking of the cost of drilling, President Herron stated that a producer had to be an optimist to drill a well in Turner Valley as the average cost of a hole to the lime was $150,000. The operator is also confronted with other difficulties such as the "freezing" of the wells with a consequent stoppage of production necessitating frequent cleaning out jobs.

President Herron touched on the conservation of the gas and oil in the Turner valley field and the desire of the producing companies to co-operate with the Dominion and Provincial governments in some plan to utilize the gas which is now being burned in field flambeaux at the rate of 250,000,000 cubic feet daily. The flames from these flambeaux can be seen at night for a distance of 25 to 30 miles.

Various plans are now under consideration for utilizing the gas such as the manufacture of carbon black but the one regarded most favorably is its transportation to Winnipeg by a pipe line of more than 800 miles long. This would entail a cost of from $30,000,000 to $40,000,000.

A cheaper and more feasible plan with a wider market would be to lay a pipe line to Butte, Mont., or Minneapolis or St. Paul, but the Dominion government has placed an embargo on exporting the product. Because of the limited market for carbon black in Canada and the tariff in the United States, it is claimed that the utilization of the gas for the manufacture of this product would not be feasible.

There are more oil companies than wells and more brokers than companies in Canada. This is particularly true in Alberta where the industry is young. Ontario was at one time quite a large producer of crude petroleum and New Brunswick has been producing small quantities of rock oil for a number of years. Only in the last several years has Alberta taken the lead from Ontario.

J. W. Huff, vice president and general manager of the Regal Oil & Refining Co., Calgary. The company has a refinery with charging capacity of 2500 barrels and a number of service stations. It is now laying 4-inch pipe line for oil from Turner Valley field to Calgary. Stations are blue and white and very distinctive. Pipe line will be completed early in November

Insofar as quantity is concerned when compared with some of the oil producing countries of the world, the production of crude petroleum in Canada is negligible. However, it is inconceivable that a country so large and with such a diversified topography as Canada should not have a number of important oil fields awaiting the men with courage enough to hunt for them.

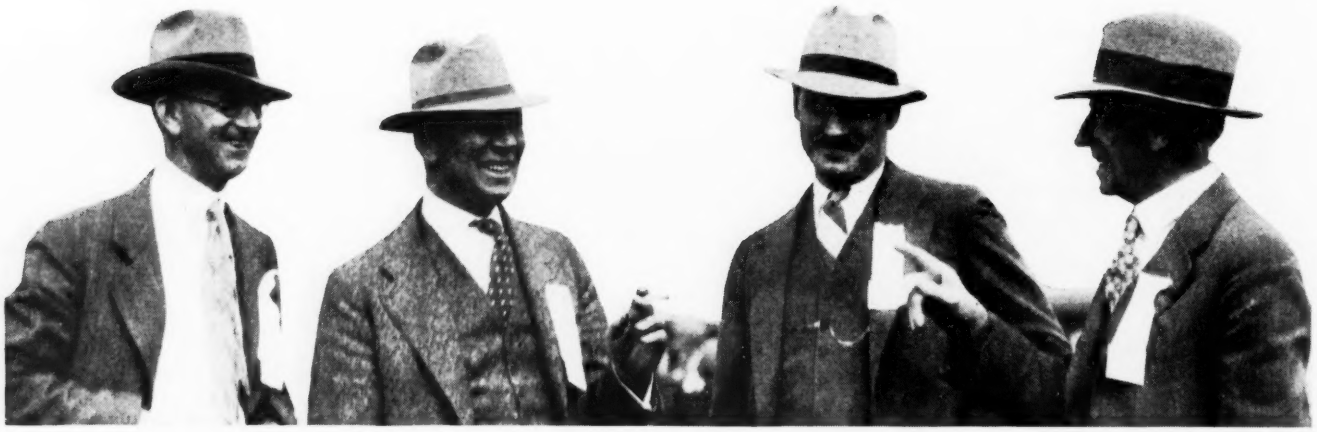
It has only been in the last three years that the province of Alberta has been attracting the attention of the outside oil fraternity as a potential oil producing section of country. The importance of the Turner Valley field does not lie in the quantity of oil it produces but the fact that there is petroleum in this field and the quality of the oil is undoubtedly an indication that there must be other fields in the province of equal or greater importance. The extremely high gravity of the naphtha would seem to indicate that the oil is of either migratory origin or else coming up from greater depths through fractured rocks.

The discovery of oil in Turner Valley has already led to an intensive wildcat campaign which has already spread over a large part of Alberta and is overflowing into British Columbia, Saskatchewan and Manitoba. Oil has been discovered at Wainwright above Edmonton and at Skiff, and gas in commercial quantities at Medicine Hat, Moosejaw, Cypress Hills and half a dozen other localities.

From an examination of the map of Alberta, keeping in mind the watersheds and stream courses it would appear that the Peace River country has all the earmarks of potential oil territory. The coal measures and tar sands of the province are further indications of and gas prospective production. With Turner Valley as a proved field to encourage prospecting, it is only reasonable to believe that Alberta and other provinces in the Canadian Northwest will soon become important factors in the crude oil production of the western continent.

The Turner Valley field is unique. It is truly the "wonder field of the world." Practically each well in the field is a wildcat. Of the 40 odd producing wells few are producing from the same horizon. One well may be producing from around 2000 feet while one on an adjoining location may be producing from below 5000 feet. The gravity of the crude or naptha often varies several degrees in adjoining wells. The quantity of gas and oil vary considerably in wells producing within a radius of several hundred feet.

Just why there should be such a difference in such limited areas is accounted for by the geologists who have made a most careful study of the field who claim there is a highly faulted condition of the structure. The field lies right up against the foothills of the Canadian Rockies where there has been an overthrust



Ed W. Kalb, Calgary hotel and restaurant man and on directorate of number of Alberta oil companies; John H. (Jack) McLeod, general manager of producing and operations for the Imperial Oil Co., Ltd.; H. E. Vickerman, sales engineer, Jones & Laughlin Steel Corp.; A. E. Lidderdale, Rocky Mountain representative, Spang & Co., Butler, Pa.

of something like 14,000 feet extending something like 7 miles. Being so close to the mountain, there has been a sharp folding. This accounts to some extent for the greatly faulted condition of the structure.

The Turner Valley discovery has led to intensive geological work in southern Alberta with perhaps a score or more structures to the southwest, west and northwest being prospected for oil and gas with the development program gradually extending northward. It has even overflowed into northwestern Montana where three tests will be drilled on separate highs on the Lewis anticline. Very similar geological conditions prevail in northwestern Montana as prevail in the Turner Valley.

IT TAKES a long time and costs a lot of money to drill a test in the Turner Valley field. There are a dozen wells now below 5000 feet and there should be a number of completions before the close of the year. In fact several of the companies are making an extra effort to bring in two or three wells as Christmas presents for their stockholders. Some of the companies drill the wells themselves with their own organizations while others give labor contracts and still others turnkey jobs.

The average cost of a 5000-foot well in the Turner Valley field is said to be about $15,000 and the average time to drill to this depth is probably more than a year. Labor contracts are usually let on the basis of $8 per foot for the first 3000 feet, $9 for the next 1000 feet, and $10 for the next 1000 feet. After a hole has reached 5000 feet a new contract is usually made. The oil company installs the camp and furnishes everything such as rig, tools, casing, fuel and water. The labor contractor pays and boards the men.

The prevailing wages are as follows: head driller, $14 a day, regular drillers $12 a day, tool dressers $8, and firemen $6. These wages include room and board. The Imperial and subsidaries pay a trifle less than the foregoing but they also pay straight time with nothing deducted for shut downs and delays. As a rule all operations are closed down for Sundays.

The Turner Valley field, as mapped by the geologists, greatly resembles a giant cucumber slightly curved with the axis running on about a 10-degree slant to the northwest and southeast. From the northernmost to the southernmost drilling well it is 16 miles while the proved area east and west is one and one-half miles. The proved area north and south is about 8 miles.

Delegates to the convention were taken on an auto trip through the Turner Valley field after they had been welcomed to Alberta by Mayor F. E. Osborne of Calgary. The route to the field was over a fine graveled highway 42 miles long. Delegates were served lunch at the Royalite camp of the Imperial Oil Co., Ltd.

The trip through the field included a visit to the machine shops of the Imperial, its scrubbing plant and some of the more interesting wells among them being the No. 4 McLeod, Royalite wells, Dalhousie wells, Oklata wells and Calmont wells in the center of the field, the Home wells in the southern part of the field, and the Spooner wells and No. 4 Royalite in the northern sector of the proved area. On the last leg of the trip, the entire party stopped at the camp of the Invaders Petroleum Co. where refreshments were again served.

THE return trip from the field was made over a scenic highway passing diagonally through the Sarace Indian reserve. A new structure has been mapped in the reserve which has been named Calling Valley dome on which a test is being drilled by the Anglo-Indian company. Just before entering the Turner Valley field on the trip out, a test is being drilled by the Moody interests in sec. 8-20-2w5 with a total depth of approximately 5200 feet.

This is an edge well and there is considerable difference of opinion about the depth at which the lime will probably be reached. Estimates vary all the way from 5500 to 16,000 feet. The test contains a fortune in pipe. It is cased with about 200 feet of 20-in. to shut off water, with about 1500 feet of 15½-inch, 3900 feet of 12½-inch, 4400 of 10-inch, and 5100 feet of 8¼-inch which it is carrying. All the smaller strings of pipe are seamless.

The first day's program closed with an informal reception at the Palliser Hotel largely attended by the delegates on both sides of the international boundary line.

AT THE opening session, Friday morning, President Herron of the Alberta association lost no time in introducing the president of the Montana chapter of the Rocky Mountain Oil & Gas Association, Donald Campbell of Great Falls. Mr. Campbell is a well-known attorney of Montana who has specialized in legal matters pertaining to the petroleum industry in all of its branches in Montana. His warning to the Albertans that all revenue from sales taxes should be devoted to highway improvement met with hearty approbation.

President Campbell addressed the delegates on "Organization and Cooperation." He gave a brief resume of what the Montana organization had accomplished by organization and cooperation in not only solving the problems confronting the companies in practical operations but also in the way of taxation and in educating the public as to the relation between the companies and the various governmental authorities. He deplored reference to the industry as a "game" and designated the oil and gas industries as being sound economically and conducted along highly spe-

cialized and scientific principles.

Governor J. E. Erickson closed the morning session with a talk on "Montana" at the close of which he spoke briefly on the importance of the oil industry.

Between the addresses of President Campbell and Governor Erickson, a very enlightening paper was read by E. Byers Emrick, petroleum geologist of Conrad, Montana, on "Sharp Folding Adjacent to the Rocky Mountains in Southern Alberta and Northwestern Montana," He compared several structures in this area to the Turner Valley field and stated that arrangements had already been made to test three of these structures immediately.

He expressed the belief that there were possibilities of production and that the tests would be watched with considerable interest by the oil fraternity on both sides of the international boundary line. His paper will appear in full in an early issue.

Friday afternoon the golf enthusiasts among the delegates were entertained at the Bowness Country Club. While the golfers were contesting for prizes on an 18-hole course a fierce game of "soft ball" took place between the geologists and the doodlebugs, the doodlebuggers winning over the rock hounds by a close margin.

While the men were playing golf in the afternoon, the visiting ladies were entertained at tea at the home of Mrs. Herron, wife of the president of the Alberta association.

In the evening there was a banquet in the main dining room of the Palliser Hotel.

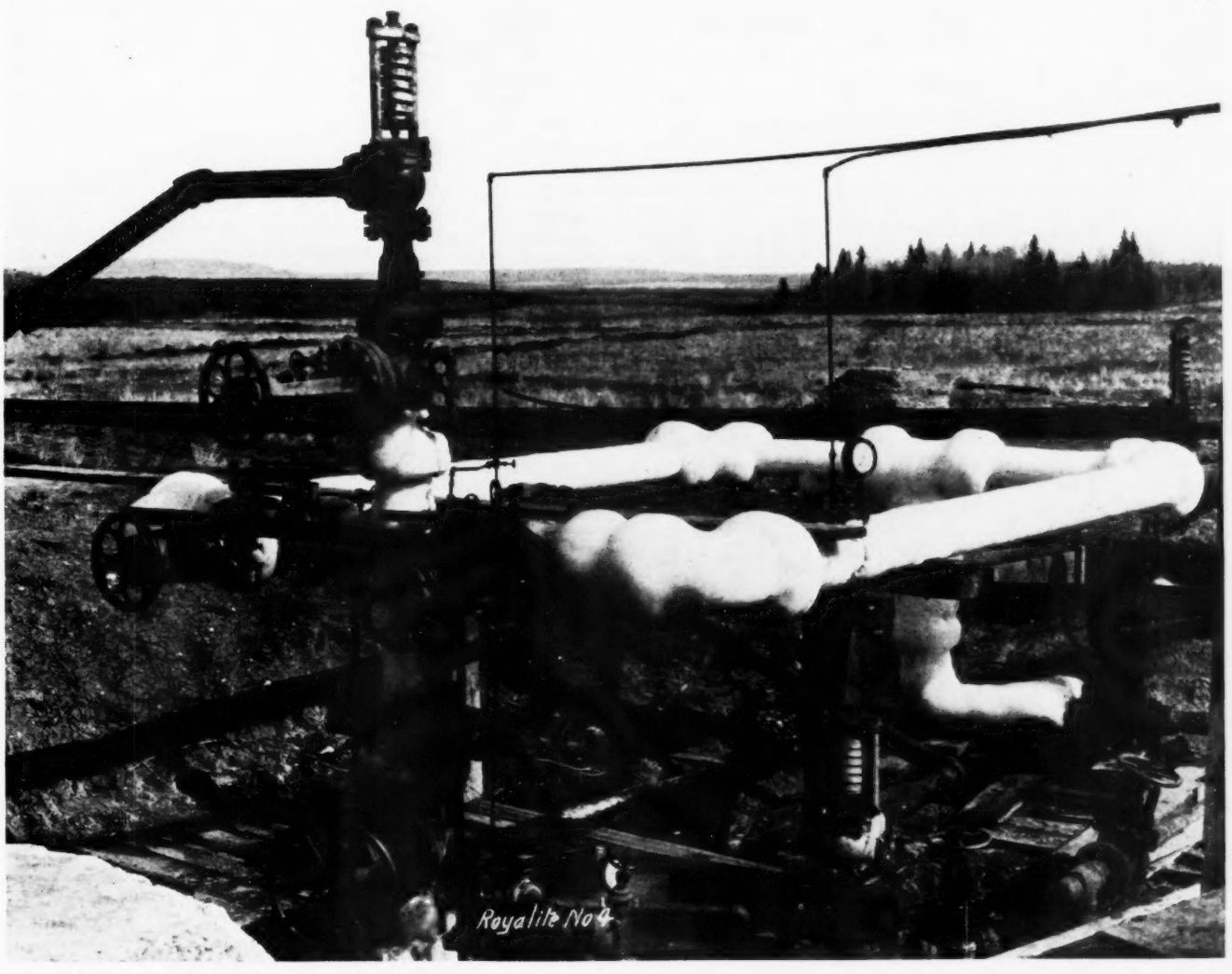
SATURDAY'S sessions were rather brief. In the morning, J. E. Walsh, general manager of the Canadian Manufacturers' Association, addressed the delegates on "Canadian Industry." He estimated the total wealth of Canada at 60 billion dollars and the amount of money invested in the oil and gas industries at $60,000,000.

J. H. McLeod of Calgary, general manager of operations for the Imperial and subsidiary companies, was called upon and responded with a few extemporaneous remarks on the company's activities in Alberta. He told of some of the difficulties with which the operators had to contend in the Turner Valley field and how they were learning to overcome some of them by actual drilling experience.

He stated that there were 65 tests under way in the Turner Valley district or territory tributary to Calgary and that the Imperial and its subsidiaries had 22 tests under way of which 20 were in the Turner Valley field, one in Highwood and one at Jumping Pound.

W. M. Fulton, president of the Fulton Petroleum Co. of Conrad, Mont., talked on "Reminiscences." He related a number of experiences in the early days of the oil industry when he was employed as a teamster and later as a scout in the oil fields of Kentucky and Ohio.

At the afternoon session, Saturday, Dr. Theo. A. Link, chief geologist for the Imperial in Western Canada, read a paper on "Oil and Gas Devel-



Old Faithful, Royalite No. 4, visited by oil men attending the meeting at Calgary. This well has been producing since October, 1924, at rate of 400 barrels daily, and up to September 1, 1929, had yielded $3,576,960 in revenue from sale of high grade naphtha testing 73 degrees on the Baume scale. It is owned by the Royalite Oil Co., a subsidiary of the Imperial Oil Co., Ltd. Along with the oil it produces about 15,000,000 cubic feet of gas daily

George H. Cloakey, managing director of the McLeod Oil Co., Ltd.

opment in Canada." The paper was short and to the point. It is the opinion of the author that there are a number of areas being tested in southern Alberta at the present time that will largely determine future prospecting for oil in the province.

There are two physiographic areas in the province in which geological conditions differ greatly. One of these is the foothills along the eastern edge of the Canadian Rockies and the other is the plains area covering the greater portion of the province.

In the foothills area lies the Turner Valley field with its high gravity product coming from the lime and the heavier oils from shallower depths.

Producing horizons are very irregular due to intense faulting of the structure. To date this structure has been proved for gas on its crest with light oil in the lime near its center, heavier oil farther out toward the edge and salt water still farther out. Among other things, he said:

"While the present oil development both in the plains and foothills of Alberta may not lead to the discovery of a medium grade crude oil, it is believed certain that the present operations will throw enough light on the subject to prove of great value when drilling technique has reached the stage where 8000 and 10,000 foot holes are an everyday occurrence.

"At the present time there is great speculation regarding the possible location of a crude oil pool and the finder will not only be fortunate but also something of a hero.

"There are numerous theories regarding the whereabouts of such a pool. Some think that deeper drilling in the foothills belt will disclose it; others think that flank wells on foothills structures should lead to its discovery; others are hoping to find it in the higher formation of the plains while still others look to the deeper lying paleozoic beds of the plains area. These are not all the views, but they represent the most prevalent ones held in the circle of oil operators of Alberta. They are all more-or-less based upon sound reasoning as well as past experiences gained from other oil fields of the world.

"In the Wainwright and Skiff fields, on opposite edges of the prairie area, the crude is of a very low gravity. It is the theory of some that by deeper drilling of the Prairie structures a gravity of medium crude may be discovered. Wells to the lime in the prairie structures may lead to the discovery of light oils but so far the experiment in Montana has not been encouraging.

"East of Turner Valley new producing areas may be discovered by very deep drilling but it is doubtful if such wells would be commercially profitable because of the great expense in completing them. West of the Turner Valley petroleum production is regarded as problematical because of the broken formations and metamorphism."

In concluding the paper the author voiced the opinion that there are enough tests now drilling at widely separated structures to test practically all of the theories if carried to proper depths so that within another year much more will be definitely known as to the commercially profitable oil bearing sections of the province.

The last number on the regular program of the afternoon was a humorous talk by W. W. Gail, publicist of Billings, Montana.

Following the close of the address by Mr. Gail, the secretary of the Montana chapter of the Rocky Mountain Oil & Gas Association, Walter F. Brittan, offered a resolution which had been unanimously adopted by the directors and officers of the Montana organization, expressing to the Alberta Oil & Gas Association its appreciation of the hospitality extended visitors.

The regular program of the convention closed with the afternoon session. However, there was a concatenation held at night of the Imperial Grand Lodge of the Wildcatters of the Universe at which a class of about 100 was initiated into the mysteries of the order.

At the close of the concatenation, officers were elected for the ensuing year as follows: Grand Keeper of the Log Book, A. H. Raymond; Grand Imperial Keeper of the Wildcat, O. I. DeSchon; Great Imperial Pebbly Puppy, Dr. Theo. A. Link; Grand Imperial Look Box, L. F. Sontag; Grand Imperial Control Head, E. B. (Hardrock) Coolidge; Grand Imperial Tank Wagon, R. P. Jackson.

Canadian Field Notes

A wave of wildcatting is sweeping over Alberta. Besides the 40 odd tests drilling in the Turner Valley field, there are from 1 to 10 tests drilling on the following structures in the Calgary district:

Waite Valley, west of Turner Valley; New Black Diamond, between Turner Valley and Waite Valley;

L. A. Hines, Kansas City, sales manager, White Eagle Oil & Refining Co.

Ghost River, 42 miles northwest of Calgary; Wildcat Hills, 5 miles west of Ghost River; Morley Reserve, 40 miles west of Calgary; Jumping Pound, 38 miles west of Calgary; Warner structure, 40 miles south of Turner Valley; Highwood, 3 miles south of Turner Valley; Pincher Creek, 100 miles southeast of Calgary; Milk River, 95 miles southeast of Calgary; Death Valley, continuation of Waite Valley; Calling Valley, Saracee reserve.

A columnar section of the Turner Valley shows the following geological strata: Benton Shale, 2650 feet, consisting of black and sandy shales interspersed with a few thin sandstones; Blairmore with 375 feet of shales and sandstones in which are found the Stockmen and McDougall-Segur sands; Kootenay with 275 feet in which are stray sands, Home producing sand, and coal measures; Fernie Shale with 275 feet of calcareous shales and sandstones in which is the Dalhousie sand, and then the production horizon of the limestone which has never been drilled through.

While the convention was in session the first day, a gas well was brought in 13 miles south of Oyen near the Alberta-Saskatchewan boundary and 145 miles southeast of Calgary. The locality is 90 miles north of Medicine Hat and near the Bow Island field. An open flow of 15,000,000 cubic feet was reported from a depth of 3135 feet. It was drilled by the Fuego Oil Company.

On the last day of the session a 20,000,000-foot well came in at Turner Valley extending the producing area of the field one-half mile to the south. The new well was drilled under an operating agreement with the Associated Oil Company by the Imperial Oil Company, Ltd. The producing horizon is in the limestone 210 feet with a total depth of 5410 feet.

The well blew in while the drilling crew was fishing for tools. It will be placed on production as soon as separators can be installed. An estimate of the quantity of naphtha it will produce is placed at 600 barrels.

Give Your Boiler Plant a Fair Chance And It Will Repay You Well

By Herbert A. Ross*

Presented at National Petroleum Association Meeting, Atlantic City, Sept. 18

IN THE conduct of refining crude petroleum and production and utilization of heat energy, particularly in the form of steam, plays an indispensable part in the quality of the finished materials sold to the consumer. Regardless of its importance to the processes, however, the general attitude of everyone concerned either in its production or utilization often seems to be a passive endurance of the evil necessity to burn fuel.

Probably a B.t.u. is an insignificant thing in your estimation, the importance of the mechanical energy it represents to the engineer, however, has been of great value in the development of refining processes and economies. The department where this energy is produced in an oil refinery is the boiler house. Therein from 60 to 80 per cent of the purchased energy-producing material called fuel is consumed. This department is the heart of the plant and through its arteries of steam mains must flow volumes of heat fluid suitable for the processing departments. Every processing activity is absolutely dependent upon the quality of this heat to furnish either maximum or minimum volumes of profitable products.

We may spend a fair-sized fortune for the most modern fractionating equipment, controlled by every automatic device which human ingenuity can conceive. The profit we earn from such investment is dependent upon the adequacy and mechanical efficiency of the boiler plant. We will employ expert operators and pay them a good salary in order to obtain a maximum of efficiency from fractionating equipment. At the same time, we will install the cheapest labor obtainable to furnish the necessary quality of heat energy to operate this expensive fractionator.

We will with daily regularity carefully scrutinize records and details pertaining to production and sales. May I ask how often we afford as serious an interest in the boiler plant?

At stated intervals we will obtain an inventory of stocks on hand and determine the losses we sustain in processing operations. We have studied records of this situation for so long a time now that we can instantly determine our standing in this particular. We follow this procedure because it is one of the "yard sticks" upon which we rely to predicate a profit. What about our fuel inventory? Have we ever attempted to carefully study this situation and determine the fuel loss we sustain? What comparative yard stick do we use to determine the efficiency of the boiler plant and its contribution to profit, or what corrective measures have we ever undertaken in this respect?

WE INVEST thousands of dollars in a new filter plant that is a marvel of efficiency and point with justifiable pride to the model system of headers, valve controls, heat exchangers and conveyors whereby we are enabled to process at a peak of economy. Have we forgotten that our profits in this department derived from the quality of lubes, thruput capacity, clay virtue and diluent losses are absolutely dependent upon the heat energy product generated in that dingy, dirty place called a boiler room, which everybody seems to avoid, and operated by an under-paid attendant left principally to his own devices? This individual's knowledge of economic combustion procedure does not, as a rule, extend beyond the certain assurance that, using his own vernacular, "He will ketch Hell if he does not keep the pressure up," regardless of how much fuel he must burn to do so.

I could extend my criticism of wasted steam heat energy into every department we have, and prove the loss we sustain. We take a pardonable pride in emphasizing the fact that we manufacture a product par-excellence, with the most modern and efficient equipment that money can buy. Is our zeal equally profound in regard to the boiler room? The occasional visitor will be afforded a personally conducted tour through every department of the refinery, but the place that produces the life-giving energy which activates all the beautiful equipment is so dejected and unwholesome that we try to avoid it.

Have you ever seen a picture in graphic form of the heat energy you have purchased, produced and consumed, plotted against you thruput over a daily or a monthly period and if you have, can you correctly interpret its significance? Or do you advance the same old argument I so often encounter that runs something like this: "We are not at all interested in saving a few pounds of coal per barrel if we can obtain a volume thruput?" Considered solely from the standpoint of a few pounds of coal, the refutation may be a sound one, but when you think of the heat energy which a few pounds of coal represents, this alibi has no validity as an apology for a waste than can be avoided by an intelligent investment of money and effort.

I am willing to admit that figures can be juggled in such a manner as to be very misleading, but when they are based on known facts proved to be true, and then assembled in comparative or statistical forms, certainly no one can question their value. For instance, why is it that in two refineries processing similar crudes and producing the same material, the fuel and labor cost is 15 cents per barrel of thruput, while the other sustains a cost of 30 cents or more? Why is it that one boiler plant will evaporate six pounds of water per pound of coal and another 10 pounds of water on the same amount of a given fuel? Why is it that one plant is consuming eight boiler horsepower per barrel of thruput while the other uses 20-30, or 40 for the same purpose? Why is it that one plant is consuming one pound of fuel per gallon of thruput and the other two pounds?—One or the other of these plants may be yours.—These questions are pertinent ones, but the total amount of profit you obtain is largely dependent upon the serious attention you afford such problems.

CONTRASTED with the present day knowledge and experience in the art of petroleum refining, our procedure of just a few years ago seems to have been rather inefficient and antiquated. We may reasonably anticipate the possibility that five years hence our present practices will be just as out of date. Thus the bugbear of obsolescence affords a continuous menace to our profits. We no sooner spend thousands of dollars to satisfy the market demand for high grade motor gases and lubricants than we again hear the cry, "Improve your processes further, for we must have still better materials than you have heretofore furnished."

The refiner has always kept pace with the demand in the past and will

*Engineer, cooperative boiler house program, National Petroleum Association.

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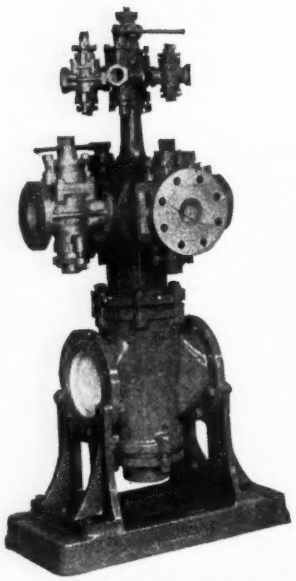

In the accompanying illustration, 1000 lbs. are resting on the plug of the lower valve—yet the proper adjustment of the packing glands allows this exhibit to turn easily without the slightest trace of sticking.

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undoubtedly do so in the future, but while he is going through this transition of improved methods, he has often been forced to take a so-called "gambler's chance" in the choice of expensive equipment which he purchases. He is faced with a necessity to consider many contradictory expensive new ideas and theories pertaining to his processing activities that completely upset any and every old refinery tradition with which he is familiar.

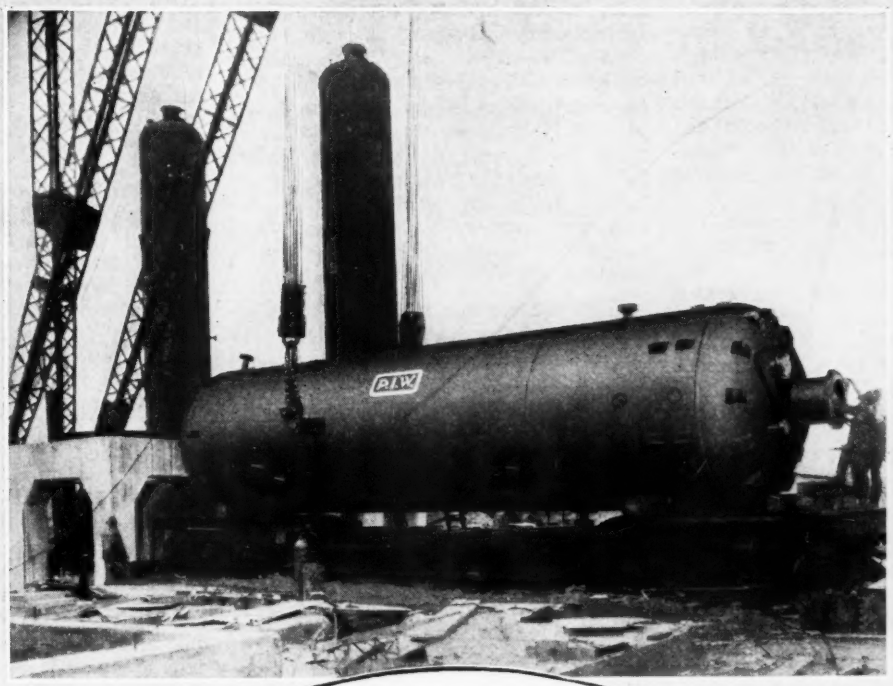
I want to direct your serious attention to some fundamental facts which are all too frequently forgotten. Underlying the whole procedure of refining from the very beginning, it has always been necessary to make use of mechanical energy in the form of steam produced in a boiler plant, and practically every improvement which you have ever made in your plants has always been and probably always will be dependent upon this essential element, whether you have thought of it in that light or not.

Modern distillation must still use steam heat energy, and it only differs from former processes in that the steam heat is applied at higher temperature levels and shorter time intervals. Perhaps I can better illuminate the situation by a use of the following illustration:

It can be proven that five gallons of sea water contains as many heat units as there is in a pound of steam at 300 pounds pressure, but this fact would not be of value in the process of petroleum refining. The older refining methods are analogous to the sea water in that low heat levels were spread over prolonged time intervals; the newer methods conform to the 300 pound steam temperature, or a highly concentrated heat energy effected by close confinement within limited time intervals.

A unit of heat energy is the same under any and all conditions, whether it is contained in melting ice or the tremendous heat of the sun. The only means by which we are enabled to avail ourselves of such energy, however, is by a series of temperature reductions founded on the well-known principle that heat can only flow from higher to lower levels of temperature reductions to extract a certain amount of energy from the various temperature level drops or steps.

In all heat problems a very important factor is the element of time which interposes as changes in temperature levels occur. Thus, generally speaking, the greater the difference in temperature levels and the shorter the length of time in which the change occurs will definitely determine the heat economies we derive in our processing activities. The economy in operation and the quality of products which are afforded by the methods of flash distillation are all founded on the foregoing principles which I have just named.



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P.I.W. STEEL PLATE CONSTRUCTION

NEW YORK CHICAGO TULSA

Cold crudes flowing to a tube still are first preheated by passing them through a series of heat exchangers which are nothing more than an apparatus designed to transmit the high latent or sensible heats of vapors and liquids that have been contained in the fractions of a distillation tower to the lower level entering crude temperatures. Here we have an illustration of the heat flow from a high to a lower temperature level, as well as the accompanying time element. After the preheated crude from the exchanger enters the tube still a temperature difference and time interval again occurs whereby heat is rapidly transmitted from the furnace to the entering preheated crude, which is then expanded into the fractionating column. In this fractionating tower we again depend upon the difference in temperature levels afforded by a series of rectifying trays and superheated steam to assist in the process of fractionation. Regardless of how elaborate the equipment may be, we are inevitably forced to face the fact that the success of the whole device is founded on the control of heat energy and time intervals.

FOR some unknown reason which I have never been able to determine, when the subject of high steam temperatures and pressures is mentioned, everyone, particularly in the refining industry, seems to be fearful of some sort of an unknown danger. We don't bat an eye at oil temperature of 800 F. under a pressure of 300 pounds in our fractionating equipment, but let me even refer to a steam temperature of 800 or 900 degrees and a pressure of 300 or 400 pounds, and everyone holds up their hands in holy horror.

It seems but a few short years ago when I was called in on a large refinery power problem where they proposed to carry a pressure of 200 pounds on the boilers and distribute the steam from a central plant. This was an entirely new departure in refinery practice and had failed to live up to expectations during the initial runs. Everyone concerned in the project seemed to have a bad case of cold feet because it upset all of the old traditions pertaining to refinery boiler houses.

All sorts of objections were raised to the high steam velocities, pressures and temperatures it was proposed to maintain throughout the system, and the most violent objection of all was afforded from the fact that we proposed to superheat exhaust steam with waste still flue gases to a temperature of 600 degrees and use it in the still sprays. The whole refinery scheme was a new idea and an improvement on the older mthods, and I believe that most of the difficulties occurred solely for the reason that it had never been done before.

I repeat that the boiler room is the heart of your plant, and every department will function economically only to the extent that your boiler plant is efficient. We have been tremendously aroused over fractionating and other processing difficulties and have spent unlimited amounts to improve our methods. Equivalent consideration as a rule has not been afforded this heart of the plant. If it is necessary to secure manufacturing economies with new fractionating equipment, I submit that it is just as essential to rehabilitate the boiler plant. If economy has been afforded from this new fractionating undertaking, equivalent values can be obtained from the modern boiler department operated as intelligently and as skillfully as the fractionating equipment is.

Wouldn't it be a ridiculous proceeding to purchase the latest model Packard automobile without a motor and then hitch a yoke of oxen to it to furnish the motive power? Certainly, the oxen could produce all of the necessary energy to move the automobile and probably have a lot of power to spare. The power they represent, however, is not adaptable, suitable or economical to activate such a fine piece of equipment.

Let us look at the picture in reverse order and consider the old ox-cart. Suppose we were to activate it with a motor. Sure! the old equipment would rattle and bang and groan, but we would get somewhere with it just the same; we would do it economically too, and figuratively speaking, we could get our products to market in quicker time and better order. This illustration is similar, in effect at least, to many of our refineries today. The old boilers are the oxen of the plant. Power? Energy? Certainly they have, but it is too slow to properly activate our modern equipment and processes, thus loss is bound to occur.

NOW let us briefly consider the obsolescence hazards to investment in fractionating equipment. We may purchase an expensive apparatus and find that before we have it installed, an improvement or a modification of process has meanwhile been made that will supersede our new undertaking. This situation has occurred and will probably continue to be an unavoidable menace of our profit.

There is only one department in the refinery where such a critical situation does not exist, this is your boiler plant. I would not have you understand that the apex of economy and design has been attained in the steam generating phase of the engineering field, by any means. At the same time, we have the definite assurance that for years to come our cheapest source of steam heat energy will be fuel, either in solid, liquid, or gaseous form.

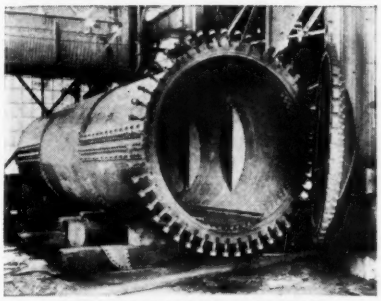
We positively know that it is not possible to extract more energy than the fuel contains. We know of the pressure and temperature limitations which dare not be exceeded. We are practically certain that for years to come the most economical means of transporting purchased heat energy will be via the medium of steam.

Finally, we have reached a point in the art of economically producing steam heat energy, where the hazard of obsolescence is not afforded by better or superseding methods. The only hazards affecting the boiler plant investment are the years of useful and economical service they will produce. Thus on this basis the return of our investment in this department is an assured one, and the possibility of early obsolescence becomes a minor one.

IN CONCLUSION, permit me to present a brief picture of what I believe the modern refinery boiler plant should be. This plant will generate steam at pressures of 400 pounds or greater and at temperatures of from 600 to 900. This superheated steam will first be passed through turbines and electrical power will be produced by extracting a small amount of thermal energy. It will then be transmitted at high velocities to the various departments through small mains and there expanded to the pressures and temperatures required for the different processes. Steam will be exhausted from pumps, etc., to accumulators which will store the unused energy until it is required for those processes that will require lower pressures, such as the filtering department. This procedure can be made to afford a balance and conservation of heat energy within definite limits of economical operation. This is not a visionary picture, by any means, for such arrangements are being successfully and economically operated in a number of other industries today.

Gentlemen, I have endeavored to afford you a few reasons why it will cost some refineries 30 or 40 pounds more coal per barrel of thruput than it does others, if they do not afford the required consideration to the boiler plant. It is not a question of the value in fuel saved so much as it is a conservation of the value in heat energy which is represented by this amount of fuel, applied in such a way as to afford a maximum volume of quality product that will return the greatest profit. These changes will be costly, and in order that the plant may be successfully operated and afford a decent return on the investment, your entire procedure must be directed and controlled by the equally efficient services of an intelligent and practical engineer who is entirely familiar with every phase of this most complex business of producing heat energy for processing petroleum.

Oil Refining Equipment



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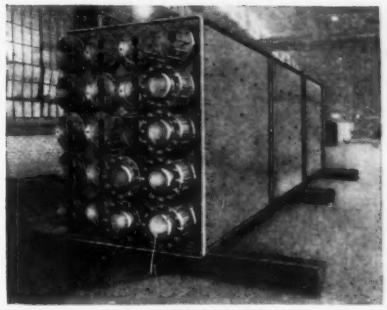
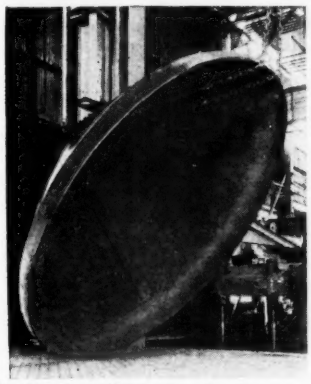
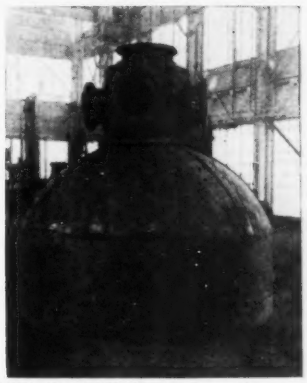


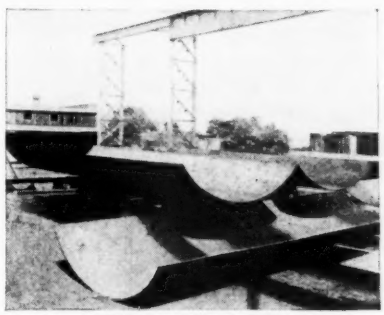
HIGH PRESSURE HEAT EXCHANGER



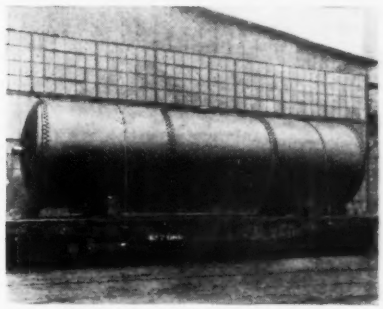
SPECIAL CONE (15 ft. diameter)



SPHERICAL HEAD (15ft. diameter)



STILL BOTTOMS



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NEW YORK PHILADELPHIA

Visiting Around the Refineries

By Paul Truesdell

National Petroleum News

LIQUID hydrocarbons have been made from gaseous butane by condensation in an electric discharge, it was reported by Dr. S. C. Lind and George Glockler of the University of Minnesota at the meeting of the Petroleum Division of the American Chemical Society at the recent meeting in Minneapolis.

The liquid hydrocarbon product was separated into 40 cuts by fractional distillation, the cuts consisting of light, medium and very viscous oils.

One of the lightest fractions, according to the authors, "was studied in detail and found to have the following properties:

"Boiling point, 110-114; index of refraction, 1.4021; density, 0.708; molecular weight, 114.7; per cent carbon, 84.55; per cent hydrogen, 15.45; empirical formula, C_8 H_{17-1}; unsaturation by halogenation, 22.5 per cent. These properties serve to identify material as a mixture of octanes and octylenes. It is interesting to note that this largest fraction of the lighter oils consists of eight carbon atom molecules which can be produced from butane by simple doubling according to theory."

* * *

COLLECTING certificates as a qualified public accountant under the laws of various states is an avocation of Maurice A. Brewster, treasurer and assistant secretary of the Pennzoil Co., Oil City, Pa. Mr. Brewster has just been granted a certificate under the laws of Pennsylvania, which are very strict and exacting.

He has for some time been a certified public accountant under the laws of Ohio and is a member of the Ohio Society of Certified Public Accountants. He has been admitted to practice before the U. S. treasury department and the U. S. Board of Tax Appeals in income tax matters.

Aside from work for his company, Mr. Brewster uses his ability with figures in the service of the oil industry as a member of the Appalachian sub-committee of the American Petroleum Institute committee on uniform accounting and as a counsellor of the department of accounting, economics and statistics of the National Petroleum Association.

* * *

STABILIZERS for cracked distillate were in use in one of the refineries of the Standard Oil Co. of California more than a year ago, being built by the Southwestern Engineering Co. of Los Angeles. This information is contained in a letter from E. K. Chase of the latter company. Mr. Chase says:

"Our attention has been called to an article which appeared on page 72, NATIONAL PETROLEUM NEWS. issue of Aug. 7 (Visiting Around the Refineries). A stabilizer for cracked distillate is mentioned there as an innovation in refinery practice. We would like to call your attention to the fact that several such units were constructed for the Standard Oil Co. of California over a year ago by this company.

"We thought you would like to know this in case you make any reference to it in future articles."

We are glad indeed to have our attention called to such facts. We did not state that a stabilizer had never been used for such a purpose but as far as our experience goes they are rare.

* * *

W. E. ESPY, well known particularly to western refinery technologists through a long connection with the Mid-Continent Petroleum Corp., at Tulsa, some time ago resigned the position of chief experimental chemist of that company and has joined the forces of the Shell Petroleum Corp., at St. Louis, his work lying in the lubrication department.

* * *

SOME interesting figures on cost of painting refinery and terminal storage tanks are given in the latest issue of The Look Box, house organ of the refining department of The Texas Co.

Two or three years ago, the article brings out, painting by hand, it used to cost 18 to 25 cents per square for painting roof and shell of tanks respectively. Recent painting done cost .0225 cents per square for the roof and 7 cents per square for the shell. The number of square feet painted per day per man has risen from 10,000 to nearly 22,000 on the roof and from 4000 to 7100 on the shell.

The tank painting is done by two-man crews, each crew using a revolving scaffold designed and built at the Port Arthur refinery. Each man operates a spray gun of the latest type supplied with air from a portable compressor nearby. Average coverage is given as 450 per square feet per gallon, sometimes reaching as high as 500 square feet.

* * *

IN CONNECTION with the use of high pressure heat exchangers in cracking units, discussed on this page in Sept. 11 issue, I am told that considerable trouble has been experienced at certain plants due to the tendency of some of these heat exchangers to leak under the severe service conditions. Serious damage, such as burning out of expensive alloy steel tubes in the cracking furnace has been caused by leaks in the high pressure exchangers.

This, of course, is because the feed stock passes through the heat exchangers on its way to the cracking coils, so if the leak is very large the volume of oil reaching the coils is too small to prevent their burning out. The heat exchangers for such service, it appears, must be exceedingly well designed and well built to stand up.

* * *

THE thanks of the refining industry are due to the Universal Oil Products Co. for making freely available the use of the two types of ceramic protective lining for cracking unit reaction chambers its technologists have developed. It was announced last week that the company will not charge royalty for use of these patented coatings on cracking equipment of any type.

The reasons given by the company for permitting free use of protective systems is that it is likely to save workmen from injury and death from cracking still explosions.

Retired Refinery Equipment Goes Back To Work to Earn More Profits

By Paul Truesdell
N. P. N. STAFF WRITER

NEWARK, O.

REFINERS, continually modernizing their plants to keep step with the march of progress, frequently are confronted with the problem of what to do with obsolete equipment. Very often old equipment is in such good physical shape that it could deliver several years of additional service and nearly always it represents a considerable capital investment that should be conserved to as great an extent as is consistent with economy.

Much ingenuity and resourcefulness is displayed by many refinery engineers in adapting such old units to new and more efficient methods of operation; in fitting the old together with the newest of equipment, all to the end of reducing the overall costs of manufacturing refined products.

An interesting example of this sort of adaptation is furnished at the Heath refinery of The Pure Oil Co. near Newark, O. Four obsolete cracking units have been converted with a minimum of investment and labor into two modern efficient cracking units to operate the company's Gyro* vapor phase cracking process.

*This process was described by C. R. Wagner, Pure Oil Co., in NATIONAL PETROLEUM NEWS, April 24, 1929, page 40-A.

In order to give a clear idea of what has been done, a little historical sketch is necessary.

In 1921, four Cross cracking units were installed at the Heath refinery, which had then been built only a short time. The Cross process at that time was a new thing. In fact, the four units at the Heath plant constituted the second installation of the process, the first having been tried out and proved and improved by Dr. Walter Cross himself at the plant of the Indian Refining Co. at Lawrenceville, Ill.

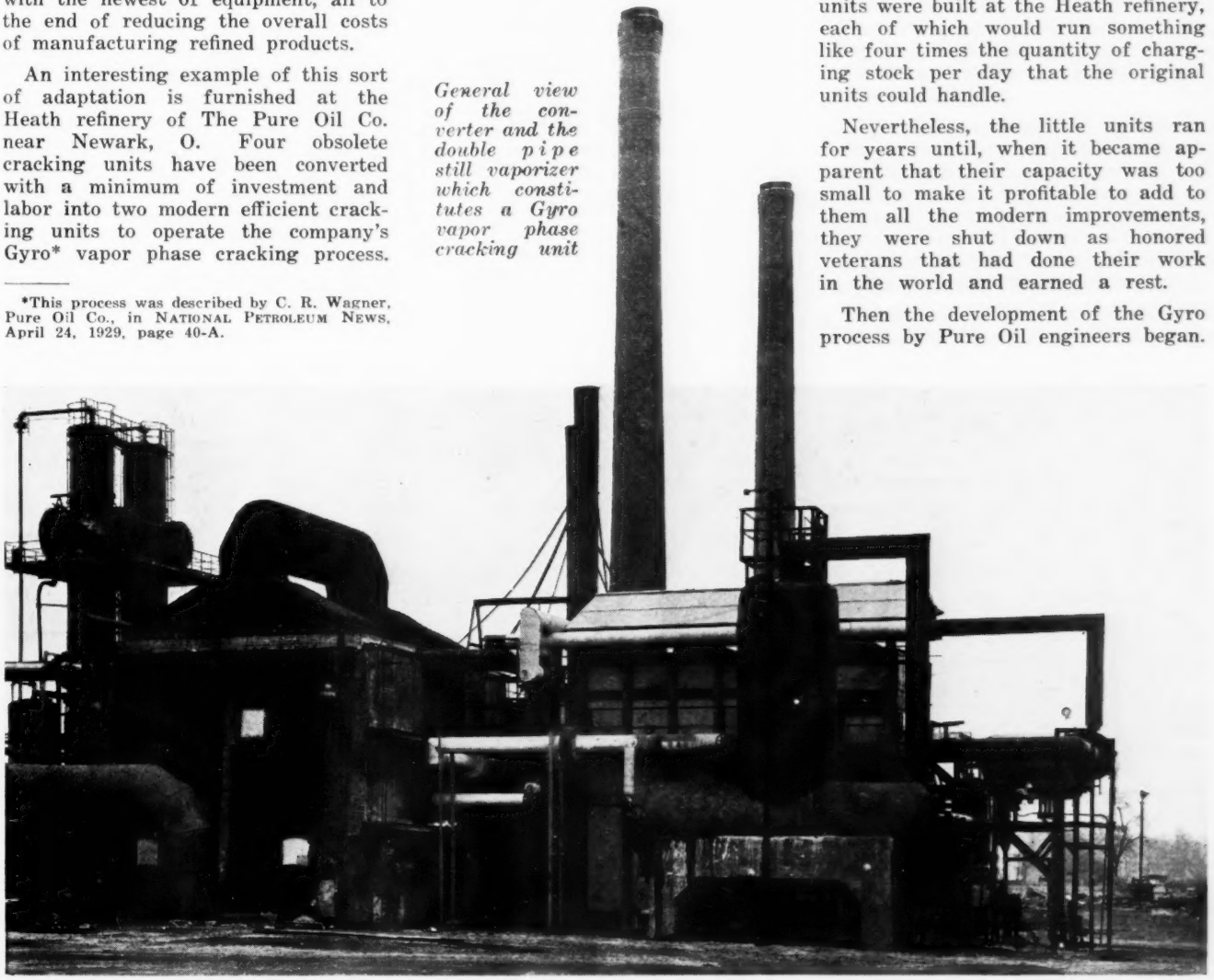
Each of these Pure Oil units originally consisted of a tube furnace or pipe still, a reaction chamber and a control house with the necessary pumps, tanks, condensers and so forth.

The units were small, having a daily capacity of about 500 barrels of fresh charging stock each. In 1923 the units were improved by the addition of a fractionating tower designed by Pure Oil engineers so that finished gasoline was taken off the system direct instead of a "synthetic crude" which was run from the reaction chamber into a tank and later re-run to produce gasoline to proper distillation characteristics.

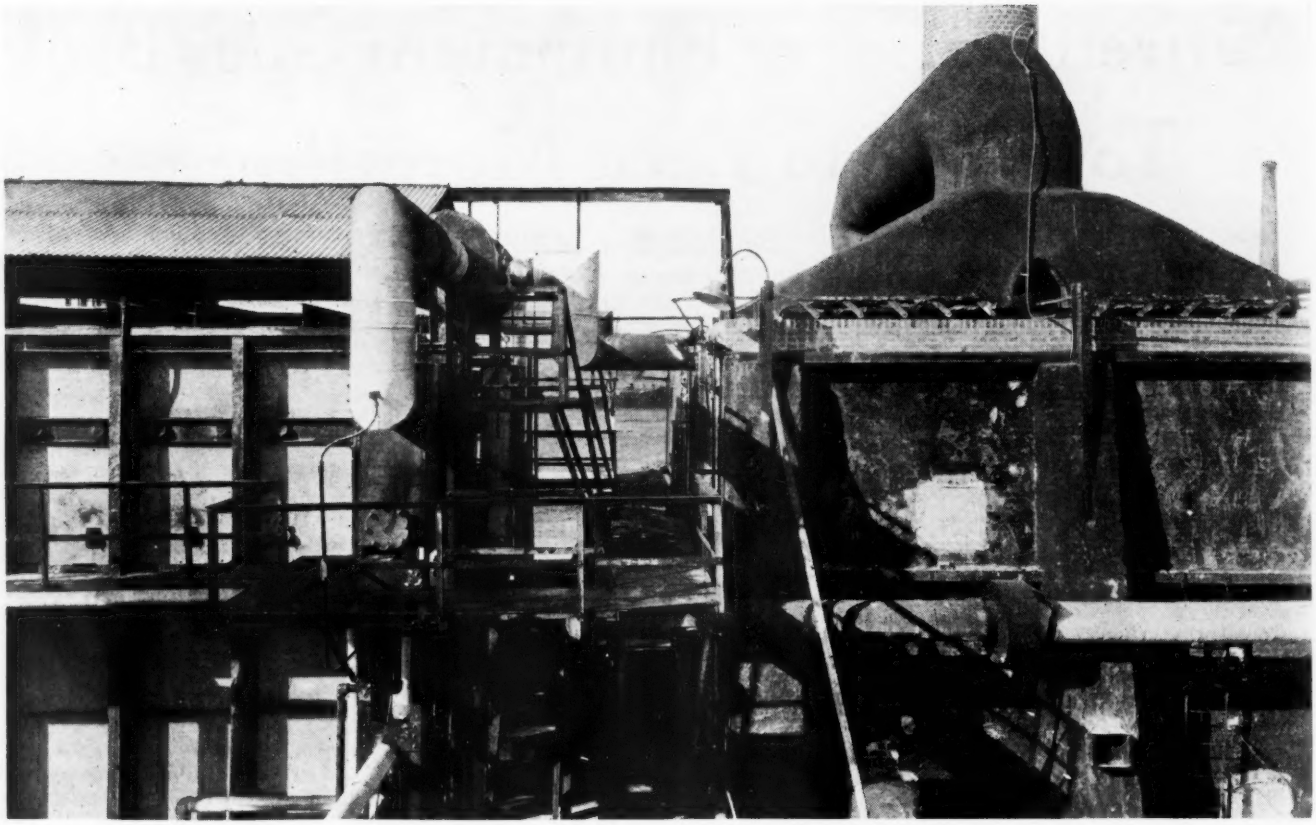
From the date of the installation of these early Cross units, improvements and developments of the Cross process were rapid. Two more Cross units were built at the Heath refinery, each of which would run something like four times the quantity of charging stock per day that the original units could handle.

Nevertheless, the little units ran for years until, when it became apparent that their capacity was too small to make it profitable to add to them all the modern improvements, they were shut down as honored veterans that had done their work in the world and earned a rest.

Then the development of the Gyro process by Pure Oil engineers began.



General view of the converter and the double pipe still vaporizer which constitutes a Gyro vapor phase cracking unit



The old and the new. On the left is a new Gyro converter. On the right, the two old Cross pipe stills hooked together in series by the flue at the top

It was desired to build two Gyro units at the Heath refinery. The Gyro unit consists essentially of a "converter" a special high temperature cracking furnace designed for the purpose, and "economizer" and an "arrester." The economizer is simply a pipe still in which the charging stock on its way into the system is heated by the hot gases coming from the cracking furnace on their way to the stack.

The arrester is a small, tank-like container in which vapors at high temperature coming from the converter are shock chilled by impact with cold charging stock coming into the system.

The engineers, surveying the ground, looked with favor on the old and shut down liquid phase cracking units. They were in good condition. The question was, how to fit them into the scheme of the Gyro process.

It was decided to hook up the four Cross cracking furnaces in pairs, each pair to serve as the economizer for a Gyro unit. This was done and two standard Gyro converters were built, each of which was connected up with the one of the pairs of Cross furnaces. Thus the building of two new pipe stills was avoided.

Two arresters were installed for each unit and the same fractionating tower which had served the four Cross units took up the burden of handling the vapors from the two Gyro units. Only the four reaction chambers were discarded.

The same control houses used for the old Cross units and even the same instruments almost entirely, were converted to the purposes of the Gyro units. The instruments, of course, had to be recalibrated to meet the different operating conditions and a very few of them had to be replaced. The same pumps were used as far as they went but four hot oil pumps were added.

The working of the Gyro unit was explained to me by R. D. McClaran, superintendent of the Heath refinery, as follows:

Topped crude of about 26 A.P.I. gravity, which at the Heath plant is the charging stock both for the Gyro and for the Cross units, is pumped at atmospheric temperature from a storage tank into the arrester where it comes in contact with vapors coming out of the converter at about 1100 to 1120 F. This baffled container is called the arrester because cracking is instantly arrested by the shock of meeting the cold oil.

The temperature of the vapors is instantaneously reduced to about 550 to 570 F. and the temperature of the oil is raised to a like figure. The vapors pass through a line overhead from the arrester into the side of the fractionating tower. The heated oil passes out through the bottom of the arrester and enters another line which discharges it into the fractionating tower slightly below the liquid level and considerably below the vapor inlet.

Vapors pass overhead from the fractionating tower to be finished into Gyro gasoline. A hot oil pump takes suction from the bottom of the tower and delivers oil at about 450 F. into the converted Cross pipe stills, the oil passing through the two connected furnaces of each unit in series.

From the pipe still the oil and vapor pass at a temperature of about 750 F. to a flash tower or evaporator where the heavy ends drop out and are drawn off as fuel oil while the vapors go overhead through a liquid separator with vane packing which is designed to remove the entrained liquid from the vapors.

Removing so far as possible all traces of liquid from the vapors is one of the most important points in the process. In the bottom of the liquid separator is a trap like a steam trap which is automatically dumped when filled. Still another step in complete removal of the entrained liquid is the "dryer" in the converter. This consists of a bank of eight 8-inch tubes through which the vapors pass on leaving the liquid separator.

From the dryer the vapors pass into a header from which lead five rows of 2-inch tubes. These tubes are in parallel so that the total travel of the vapors in the converter is only about 70 feet. The vapors coming out of each converter are split into two streams, one stream going into each arrester to meet the cold oil as before described.

Temperature conditions in the Gyro converter are severe, the temperature reaching a maximum of 2500 to 2600

F., and the structure is designed for this heavy duty. The furnace is equipped with a Detrick flat arch with suspended side walls. It is fired by four low pressure gas burners designed by Pure Oil engineers. The burners enter the front of the furnace through tight boxes.

No air is admitted through the front of the furnace. The air for combustion is drawn in by the draft of the burners through a row of ports around the furnace wall near the top. The air passes downward through a duct between the outer insulation layer of the furnace and the wall of the fire box, thereby picking up heat, and passes into a chamber at the bottom of the front wall of the furnace whence it is sucked in by the burners.

The very severe conditions arise from the fact that the vapors are raised from about 750 F. when they enter the furnace to more than 1100 F. in a single pass of only 70 feet. This makes the problem of tube maintenance a difficult one. It is well met, however, by the use of Calorized tubes in the furnace with chrome nickel steel for the sections directly above the fire.

Two difficulties were encountered when it was attempted to use the chrome steel for the entire coils. The first was the difficulty of rolling the chrome steel tubes into the header and the second was that the different coefficients of expansion of the ordinary steel of the header and the alloy steel of the tubes caused a tendency for the tubes to pull out of the header, causing fires.

So Calorized tubes are rolled into the headers and welded and 5-foot lengths of the chrome nickel steel are welded to the ends of the Calorized tubes, 5 feet being about the length of the tubes that is directly above the flames and hence suffers most severely.

There is no forced draft, all the draft being furnished by the stacks. The products of combustion pass among the 2-inch tubes, and the 8-inch dryer tubes thence through the Cross pipe stills in series. Gas burners are installed in the pipe stills but it is seldom necessary to fire these to make up a heat deficiency.

No pressure is used in the Gyro process except the pump pressure necessary to force the material through the system. It is estimated that the converter is under 10 to 15 pounds pressure and the fractionating tower under about 6 pounds.

The high temperature presents a considerable problem in taking care of expansion of the tubes. To meet this problem, the main vapor headers are supported on jacks equipped with springs. The bottom ends of the jacks rest upon and are bolted to a steel I-beam.

When the header is at maximum temperature it expands and forces down the springs in the jacks. When it cools off the springs force the jacks up to support the shrinking pipe.

The 2-inch tubes coming out of the converter are each welded at right angles into a 5-foot length of pipe the lower end of which is welded into a box opening into the vapor header. The vertical 5-foot length of pipe is to give a chance for expansion outside of the furnace to avoid buckling tubes inside the furnace.

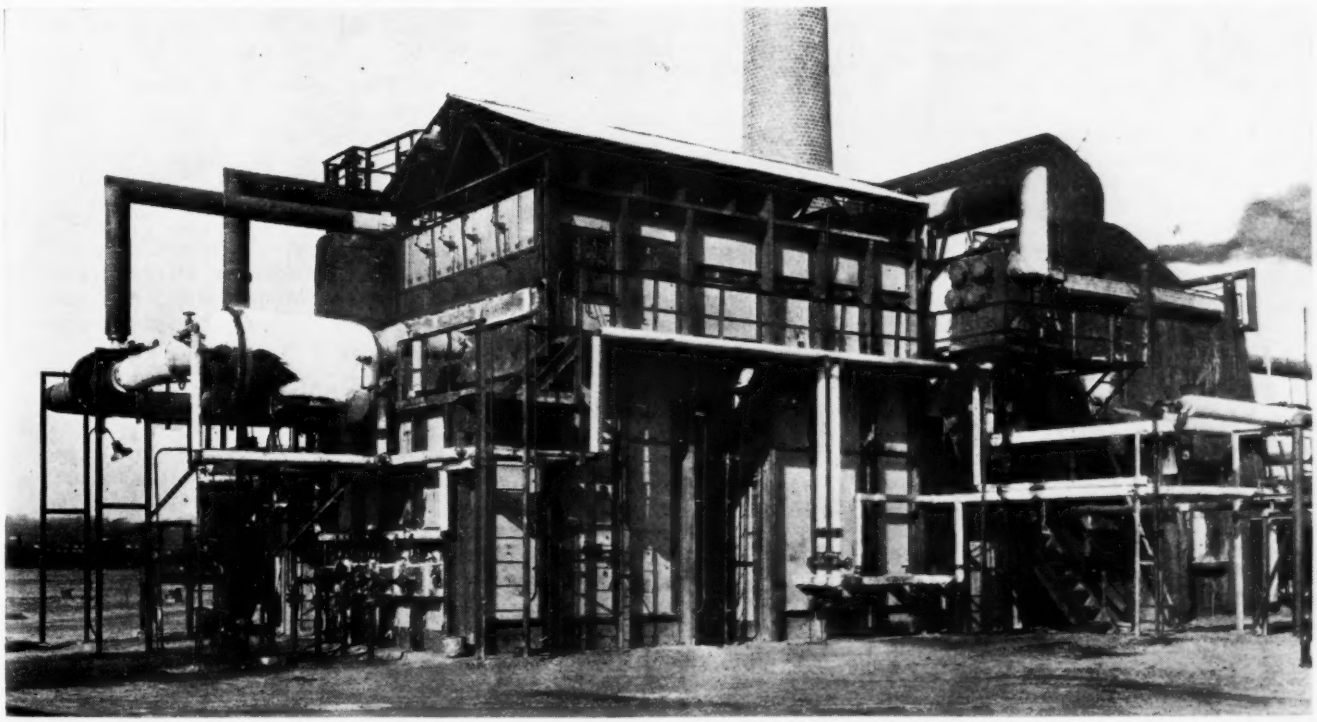
In order to furnish the needed volume of oil for shock chilling it is necessary to use more charging stock than the system can handle. The excess of this hot oil collects in the bottom of the fractionating tower. Two hot oil pumps pick up this oil from the bottom of the tower and circulate it through a shell and tube heat exchanger at a temperature of about 450 F. countercurrent to crude oil on the way to the crude stills.

Thus the incoming crude is heated to about 375 F. and a considerable part of the distillation is accomplished with waste heat.

Because of freedom from coke formation, long runs are the rule with the Gyro process. When I visited the Heath refinery on Aug. 22, one of the units had been on stream continuously for 58 days. Runs of around 40 days are a regular thing, I was told. The freedom from coke is attributed mainly to two factors. One is the shock chilling of the vapors and the other is the removal of liquid from the vapors.

The theory is that the shock chilling stops the cracking reaction just short of the point where coke is formed. In fact it has been found that unless the temperature of the vapors from the converter is reduced to at most 570 F., coke will form in the fractionating tower to an extent which materially shortens the run.

If the temperature of the vapors is allowed to remain even at 600 F., it is stated, coke formation will be excessive.



Close-up view of one of the Gyro converters. The rows of holes high up on the front of the furnace at the left are the ports through which the air for combustion is drawn to be preheated before going into the furnace

Oklahoma-Kansas Fuel Oil Output Running Below 1928 Levels

By Allen S. James
N. P. N. STAFF WRITER

TULSA, Sept. 27

WITH the season of heaviest consumption just a few weeks away, high gravity, low cold test and low sulfur content fuel oils have become an extremely scarce commodity on the spot market in Oklahoma and Kansas. Low gravity, low sulfur and low cold test fuels also were scarcer than they have been for some time. The high sulphur and high cold test fuels were the most plentiful at the present time.

A check of refiners in Oklahoma reveals that only a small number are making fuel oils of more than 24 gravity at the present time. Some of the higher gravity fuel which is being made has a comparatively high cold test. The range of gravity for fuel oils apparently is from 14 to 22. Some of this fuel is zero cold test and low in sulfur. Some is low in sulfur but has cold test ranging up to 50 F., while the remainder is low in cold test but high in sulfur content. Most of the latter grade is made from West Texas crude oil.

The desire on the part of a majority of refiners in Kansas and Oklahoma to make more cracking stock apparently has been the cause of the scarcity of high gravity fuel oils. These refiners evidently figure that the oil is worth more as cracking stock than it would be if made into gas oil and fuel oil at present price levels for those two commodities.

The opinion generally is that Oklahoma and Kansas refiners this winter will curtail crude runs considerably and do even more cracking. That program of course is contingent on several factors. The price of crude oil will be one factor. Present attempts to curb production, if successful, may have the result of keeping crude prices from dropping sharply in the winter. High crude prices make cracking desirable, particularly at times when fuel markets are depressed.

If the refiners speed up cracking operations, high gravity fuel oil will be virtually out of the picture. On the other hand, low gravity fuel oils will be increased in volume.

A study of refinery operations statistics compiled weekly from reports made to this publication reveals that fuel oil production to date in 1929 has been considerably behind that of 1928 and even slightly under that of 1927 in Oklahoma and Kansas.

Fuel oil production at refineries reporting operations amounted to 670,382,000 gallons in 1927, with shipments 689,493,000 gallons. Production for 1928 from the same group of plants totaled 739,630,000 gallons and shipments 721,603,000 gallons. Production for the first 37 weeks of 1929 totaled 473,002,000 gallons and shipments 472,987,000 gallons.

The following table shows these figures reduced to a weekly average basis and in barrels:

Year	Production (Weekly Av., Bbls.)	Shipments (Weekly Av., Bbls.)
1927	307,000	316,000
1928	339,000	330,000
1929 (37 wks.)	304,000	304,000

It will be observed that in 1927 production averaged 9000 barrels a week less than shipments, while in 1928 the reverse was true. To date in 1929 production and shipments have been about on a par, with weekly production 3000 barrels lower than in 1927 and 35,000 barrels lower than production in 1928.

A more comprehensive tabulation is given in Table No. 1, a compilation of cumulative production and shipments at intervals of four weeks, for the three years under discussion.

It will be observed that shipments outdistanced production throughout the entire period of 1927. This situation prevailed until the close of the 18th week of 1928 (May 11), but from that time until the close of the year shipments lagged behind production.

Several reasons can be advanced for that reversal. It will be recalled that the early part of 1928 was one of open weather with above normal temperatures. Weather has its effect on fuel oil demand, and demand naturally had dropped somewhat by the first of May.

Oklahoma and Kansas refiners meanwhile kept their crude runs and refinery gasoline output well in hand, attempting to produce only the gasoline which they believed their normal marketing territory would absorb. As a result cracking operations were curtailed considerably, which put more fuel oil on the market at the period of lightest demand.

Then came West Texas! By the first of July West Texas refiners were beginning to make their presence known in the fuel oil markets of the Middle West. And the prices they put on that oil with their 65 cent a barrel crude oil costs!

The result was a continuance of high fuel oil production in Oklahoma and Kansas as gasoline output was

TABLE I

(Figures Taken from Weekly Operations Reports to National Petroleum News, and Based on Four-Week Intervals.)

	—1927—		—1928—		—1929—	
	Prod.	Ship.	Prod.	Ship.	Prod.	Ship.
1st week	11,624	16,344	9,903	13,719	9,864	13,290
5th week	58,081	70,366	57,650	67,845	59,756	70,615
9th week	108,160	123,942	108,971	122,008	106,123	130,124
13th week	156,415	173,710	161,961	172,580	154,588	173,751
17th week	210,914	229,119	218,677	220,908	206,158	212,136
21st week	265,554	289,893	278,146	271,351	259,231	258,175
25th week	317,447	340,162	340,475	324,875	316,806	310,644
29th week	369,202	394,511	403,982	380,656	369,009	362,443
33rd week	423,788	440,403	469,013	439,576	421,940	417,672
37th week	478,372	491,097	531,187	501,271	473,002	472,987
41st week	529,956	539,555	594,398	557,908	.....	.....
45th week	582,289	589,896	655,670	614,041	.....	.....
49th week	632,939	646,184	706,342	675,401	.....	.....
52nd week and Total for Year	670,382	689,493	739,630	721,603	.....	.....

held in check, and a loss of business as West Texas became active.

Shipments in 1929 outdistanced production in Oklahoma and Kansas for the first 19 weeks, then dropped behind, only to pull back almost on an even keel by the end of the 37th week, which ended Sept. 13. The lower production of fuel oils undoubtedly can be attributed in part to the already high stocks on hand, the relatively low prices and the fact that cracking operations have been on a higher level in 1929.

The West Texas refiners meanwhile have slowly faded from the picture and apparently they will not have near the influence this season as they had the last. They cannot afford, with present crude oil prices in West Texas, to do much price cutting on either fuel oils or gasolines.

The percentage of cracked gasoline to total gasoline produced in Oklahoma and Kansas has increased steadily since 1927. The lowest percentage of cracked gasoline in Kansas in 1927 was 19 per cent, which was during the seventh week, and the highest that year was 34 per cent for the fifth week. In Oklahoma the lowest was 14 per cent, for the 13th week, and the highest was 24 per cent, for the 34th week.

In 1928 the lowest percentage in Kansas was 21 per cent, and the highest 35 per cent, while in Oklahoma the lowest was 16 per cent and the highest 35 per cent. For the period in 1929 the lowest was 23 per cent in Kansas and the highest 43 per cent, while the lowest in Oklahoma was 22 per cent and the highest 32 per cent.

It is interesting to note, however, that the number of weeks the percentage in Kansas was below 25 in 1927 was 15, while in 1928 this number had been reduced to four, and to date in 1929 the number of times the percentage has been below 25 totals only two.

The percentage of cracked gasoline to total gasoline produced in Oklahoma in 1927 never reached 25. There were 26 weeks in 1928 when the percentage was under 25, but these were all during the first half of the year. There have been only five times so far this year that the percentage has been below 25.

Standard Knock Testing Method Expected Within Year

By A. Ludlow Clayden*

HOW big is a knock? A small knock in the engine makes a big knock in the customer—sometimes; but the knock may be in the fuel, in the engine or merely in the mind of the user.

NATIONAL PETROLEUM NEWS has from time to time urged the technologists to hustle with a knock rating scheme that will evaluate fuels properly and the industry is getting a little impatient with the apparent dilatoriness of its technical men. But if you were to ask a group of cooks to devise a rating for the flavor of apple pie the task would not be so very much harder to perform.

However, the group of men who have been giving knock rating a really scientific study are at last making progress. Much of the dead wood is cleared off the terrain, the foundations are dug and the erection of the edifice will follow swiftly. A year hence we ought to have a rating system which will overcome all difficulties, and before then we may confidently expect some crumbs of information which will help to clarify the present almost impossible situation.

The technical men *have* been slow; but looking back over the past two years it is easy to see how terrible mistakes could have been made by going off at half cock. Certain schemes which looked perfect on paper, proved utter failures in the laboratory; the standardization of knock testing apparatus and of testing procedure has been proved to be an absolute necessity and cooperative work has shown that surprisingly large errors are caused by surprisingly small differences in equipment or in methods of use.

The deliberations of the Motor Fuel Research Steering Committee are quite properly withheld from publication since the conclusions reached are well presented to the A.P.I. and to the S.A.E. at the annual meetings of these bodies.

It is, however, no breach of faith to say that the report on knock testing to be given to the A.P.I. in December and the S.A.E. in January ought to be read by the sales executives of the oil industry because it will contain announcements of progress that mark the emergence of this work from the obscurity of purely scientific work into the daylight of commercial utility.

*Automotive and petroleum engineer.

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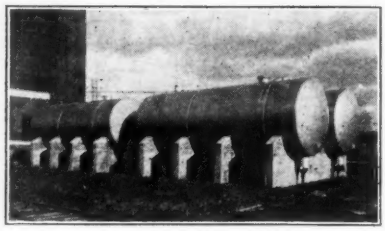

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Roseland, N. J.

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OAKITE
Industrial Cleaning Materials and Methods

The report will show that a satisfactory solution of the problem may confidently be anticipated by the end of 1930. This is none too soon, because the danger of the lack of a good system is the adoption of a bad one. If the technologists delayed too long, the commercial men would be forced to settle something for themselves and indications have not been lacking that the commercial tendency is toward a method which is fundamentally unsound.

Much gasoline has been bought and sold on a basis of "benzol value." Now if a man called you up on the telephone and asked, "How far am I from your office?" you would instantly reply, "Where are you?" But when a jobber is offered a gasoline of 40 per cent benzol equivalent he only rarely thinks to ask the equally essential corresponding question, "in what?"

Now the would-be visitor to your office might be 10 miles or 10 yards away without you knowing which, and a 40 per cent benzol value might be a fuel only half as good as the Ethyl standard or twice as good. If you want to buy gasoline to make Ethyl; the seller is likely to give you a figure as to how much Ethyl fluid is necessary, but only the Ethyl Gasoline Corp. can really tell you, because the other man's method of test could easily fail to agree by 1 cubic centimeter per gallon either way.

Here is another difficulty. Suppose you have three gasolines A, B and C. By test you find that to make A the equal in knock rating to B you need 20 per cent of benzol. To make A equal to C you need 40 per cent. But it by no means follows that to make B equal to C will take 20 per cent. The blending value of different fuels and even of fuel dopes, is different in different base gasolines; some fuels are much more susceptible than others.

This means that a fundamental knock rating *must* be given in terms of two pure chemicals if it is to have a real scientific basis. There are great hopes, of course, for the blend of heptane and the iso-octane discovered by Dr. Graham Edgar. The former is a violently knocking fuel, the latter much better than benzol. The British are using heptane and chemically pure benzene. Other possibilities are heptane and tetraethyl lead or even benzene or Edgar octane with a knock intensifier added, such as isopropyl nitrite.

Last summer Dr. Edgar told the American Chemical Society that the good motor fuels lay between the equivalent of 35 per cent heptane and 25 per cent heptane in iso-octane. According to the writer's own testing equipment, the Ethyl standard is somewhere not very far removed from 30 per cent heptane and 70 per cent iso-octane.

On the face of it this looks like a perfect rating scheme, and perhaps it is, but meanwhile we have the situation that other laboratories would fail to check the writer's by perhaps as much as 1 cubic centimeter of Ethyl fluid and this is not close enough.

So, as with all other tests for petroleum, the answer cannot be given till the test apparatus and procedure are standardized. A viscosimeter is a simple tool, simple to use and yet, with Bureau of Standards certified tubes and the utmost care by the operator, no two laboratories will check each other to the last second of viscosity on, let us say, an oil running 1000 Saybolt.

Checking knock with the equipment we now have is rather like running viscosities of 5000 or over—and try and get a check on that even in one laboratory with one operator!

It is a big job to standardize a whole gasoline engine and an almost equally big one to standardize the handling of an engine, so big indeed that we can never hope for a micrometer accuracy in knock testing as long as the engine test method is used and there appears to be no simpler alternative even in distant view. If we can get a system, however, that will enable careful laboratories to check each other as close as a half cubic centimeter of Ethyl fluid, that is good enough for all practical purposes, and such an accuracy is unquestionably going to be attained quite soon.

One thing more has got to be impressed upon administrative officers and deeply impressed; which is that knock testing is a highly skilled job and will always be a highly skilled job as long as we use engines for the work. A man capable of doing really reliable knock testing rates in ability with a tool room mechanic of the most highly skilled sort. Keen perception, accuracy, and an unusual degree of sensitivity to the functioning of a gasoline engine are essential; and much practice.

Knock testing is an art as much as or even more than it is a science. It is emphatically *not* a job that any willing boy can be trained to perform. It is more difficult than any other routine job that could be found in any refinery laboratory. It needs much more than the ability to make a good automobile mechanic. Good men once found should be kept on the job. If they do so well that they earn promotion, promote the value of the job but don't move the man.

Refinery Superintendent Married

CLEVELAND, Sept. 28.—Lawrence R. Medford, superintendent of the Iowa Park Producing & Refining Co., Iowa Park, Tex., was married on Sept. 5, to Miss Evelyn Claire Slopansky. Mrs. Medford is the daughter of Dr. and Mrs. Frank R. Slopansky of Salt Lake City. The couple will make their home in Iowa Park.

Indirect Cost of Accidents Should Be Shown to Give True Picture

By Charles M. Mills*

(Presented before National Safety Council, Chicago, Oct. 1)

THE margin of profit in these stirring days lies not so much in increased volume of business but in the savings represented by elimination of waste and reduction of costs. We all recognize that cost adds to the burden of production, reduces profits, decreases dividends, but not all of us appreciate that accident costs are part and parcel of production costs.

Do you know what are your real accident costs? What do your accident costs include? Do your accident costs cover "indirect" or "incidental" expenses underlying accidents? Do you assess or pro-rate your accident costs by departments and divisions? Do you present accident cost statistics to your operating executives? Do you sell your safety program through an analysis of accident costs? These are indeed pertinent questions to discuss.

Entirely apart from the compilation of frequency and severity rates, the problem of accident costs remains as almost an untouched field—the compilation, assessment, and presentation of acurate accident costs. Accident costs mean expense involved either directly or indirectly in the costs of accidents. Items on the general safety program such as the overhead expenses of a safety director and assistants, time of safety committees, safety equipment, installation and maintenance of the same, etc., are not included in this discussion. These costs are clearly accident *prevention* costs, and should not be confused with accident cost per se.

Accident Costs, Direct and Indirect

Accident costs are both "direct" and "indirect." "Direct" costs are immediate, tangible costs, including:

a. State or company liability or compensation.

b. Accident benefits.

c. Medical and hospital costs (outside of company staff and hospitals).

These costs are usually regularly recorded by many companies along with frequency and severity records.

"Indirect" costs are the incidental or hidden costs not usually recorded but which are generally absorbed in overhead and forgotten by both operating executives and safety directors.

The "indirect" costs include:

a. Company medical and hospital expense (usually charged to a medical expense account).

—*Photo by Bachrack*

Chas. M. Mills

b. Wages paid injured in excess of workmen's compensation or regular company benefits.

c. Time lost due to first aid, dressing etc., of minor injuries.

d. Time lost by fellow employees not injured.

e. Time of executives, foremen, etc., used in investigation and examination of accidents.

f. Time lost in machinery and equipment stoppage on account of accidents.

g. Other costs, including injury to machinery and equipment; spoilage, waste, interference with production, replacement of injured employees by replacements of substitute employees.

To illustrate, a refinery stillman severely burned incurred a total liability of $176 in state compensation, $52 in accident benefits, and cost $58 in medical and hospital expense—a total of $286 in "direct" accident costs. The "indirect" costs included $12 in company hospital expense, $114 in wages paid in excess of the direct liability of workmen's compensation, $10 in time lost by fellow employes (estimated), $25 lost by supervisory examination (estimated) and $25 in substitution of a replacement (estimated) making a total of $186 in "indirect" costs. The total real cost of the accident was $472, almost $500, instead of less than $300. Which was the real cost of the accident?

I appreciate that many of the items in "indirect" costs included in the above list are almost impossible to ascertain accurately in any branch of the petroleum industry. Due to the widely spread nature of work in production, pipe line and marketing, the time lost items are probably impossible of calculation except by any but fairly rough estimates. In refineries, however, especially where the time clocks are used, more accurate calculations can be made.

At least, this much may be said—without some consideration of these hidden factors of indirect costs, we are not yet revealing by a long ways the total actual cost of accidents in our industry, and we are not getting over to operating executives the real picture. I suggest that this whole question of "indirect" or incidental costs be analyzed and a report submitted by a committee of the petroleum section, National Safety Council. The report should set forth items that can be recorded practically in the various branches of the industry, and should point the way to the compilation of more accurate accident cost data.

Assessment of Accident Cost Data

The allocation or assessment of annual costs on a departmental basis is one of the effective methods of establishing marks or standards which operating officials and others may follow for the reduction of accidents. In my experience in more than a dozen

*Assistant to the President, Standard Oil Co. of Ohio.

petroleum companies, annual accident costs are usually compiled for the whole company and are so presented to executives in an annual report, but are seldom broken down by departments and sub-departments or divisions, or are related to the total payroll involved.

The accompanying table shows a typical layout covering assessment of accidents by departments:

	Total Accident Cost				Cost a/c Payroll				Cost Per Case			
Year	Company	Prod.	Mfg.	Sales	Company	Prod.	Mfg.	Sales	Company	Prod.	Mfg.	Sales
1924	$75,000	$22,000	$40,000	$13,000	1.25	1.10	1.60	.87	$150	$146	$160	$130
1925	60,000	25,000	27,000	8,000	1.05	1.14	1.35	.53	133	125	180	80
1926	55,000	27,000	20,000	8,000	.89	1.13	.95	.47	137	154	167	70
1927	35,000	12,000	17,000	6,000	.54	.48	.77	.33	83	86	121	40
1928	42,000	18,000	15,000	9,000	.53	.62	.63	.33	93	90	115	75
5 Yr. Av.....	$53,400	$20,800	$23,800	$8,800	.82	.87	1.06	.48	$120	$120	$153	$75

First, total accident costs for the entire company and major departments for a five year period should be compiled, together with a five year average; next a percentage of the total costs is made in ratio to the total dollar payroll of the company (in the various departments to the departmental payrolls) and then a five year average percentage. On the five year basis, the estimated projected cost for the ensuing year may be determined both for the company and the departments.

Adjustments in the projected costs may have to be made where there has evidently been a sub-normal or excessive number of fatalities, total disabilities, or other factors which disturb the general trend of the accident cost rates. These adjustments may be admitted as weaknesses in the assessment or budgeting of accident costs, but at least the above method provides a convenient yardstick for the measuring of accident costs, and puts the question of the reduction of costs in an effective and simple way before operating executives.

Accident Cost Statistics

The development of accident costs on the basis of the dollar payroll naturally leads to the whole question of the presentation of accident cost statistics. It is important that costs be submitted in concrete fashion, easily grasped by operating men. It is important, too, that boards of directors realize in cold dollars and cents the cost of accidents so that they may make adequate provision for accident prevention programs in annual budgets.

The most common methods used in petroleum companies include the following:

a. Accident cost per case.

b. Accident cost per $100 of payroll or percentage of payroll.

c. Accident cost per unit of production, manufacture, sales.

d. Total saving in accident costs in relation to amount of capital investment.

The first, accident cost per lost time accident or case, is simply ascertained by dividing total costs by number of lost time accidents. Usually these figures are compiled, with and without the inclusion of fatalities, since the frequency or absence of death cases distorts the general curve of accident case cost.

Accident cost per $100 payroll is generally regarded as the most effective way of ascertaining accident cost trends. The only concrete objection apparently lies in the fact that while payrolls may increase through upward wage revision without increase in the number of employees, accident costs remain more or less stable, and thus a somewhat false percentage is derived.

At the same time, this objection may be partially overcome by the fact that accident costs, in turn, may be increased by higher payments under workmen's compensation laws, increased severity of commission decisions in contested cases, etc. When all is said and done, however, the accident cost rate on the payroll basis does show concretely dollar cost to dollar payroll—and that is a most poignant way to reflect accident progress.

Accident costs per unit of total barrels of production, pipe line runs, or total gasoline sales are not generally used since the fluctuation in these units are so variable. For example, a fairly high accident cost might occur in a producing department at a time of curtailment; and lower costs in a period of expansion. The same criticism also holds true in manufacturing and sales.

The total cost of accidents in one of these major departments however, levied against the individual unit such as a barrel of production or gallon of gasoline, is an effective means of informing both employees and executives the direct cost of accidents. If for example a producing department puts out 10,000,000 barrels of petroleum per year, and involves $80,000 in accidents in the course of this production, then the accident cost on each barrel of course is eight tenths of a cent.

A few companies have visualized accident costs on the basis of the total amount of estimated saving (through reduction of accidents) in relation to capital investment. Thus one petroleum company, over a five year period, saved $70,000 annually in a reduction of accidents. They spent an average of $20,000 in general safety work annually, leaving a credit balance of $50,000. At 6 per cent this represents some $833,000. Estimated savings in relation to capital investment is truly a graphic way to sell a safety program.

In my opinion, simple statistical average costs per case and per dollar payroll, with estimated saving on capital investment are all effective means of presenting accident costs before boards of directors, comptrollers, and others who hold the money bags of our companies. To make the picture as realistic as possible, all these statistics ought to be used.

Summary

This paper has attempted to plead first, for more accurate accident accounting through the compilation of "indirect" as well as "direct" accident costs; for the allocation and assessment of accident costs on a departmental basis; for graphic methods of presenting accident cost statistics.

The first step must be accepted by operating executives if they are really going to find how much accident costs burden the cost of production, the second step must be followed in order to establish tangible standards to strive for in an accident prevention program; the third step must be followed in order to sell the entire safety program more effectively.

Along side of our splendid accident frequency and severity data, let us endeavor to compile accurate factual costs—costs that can weather any storm of criticism directed against a safety budget and program, costs that can reveal both real and hidden losses in production, costs that can measure more precisely human waste through accidents.

Natural Gas Deliveries Up 8 Per Cent

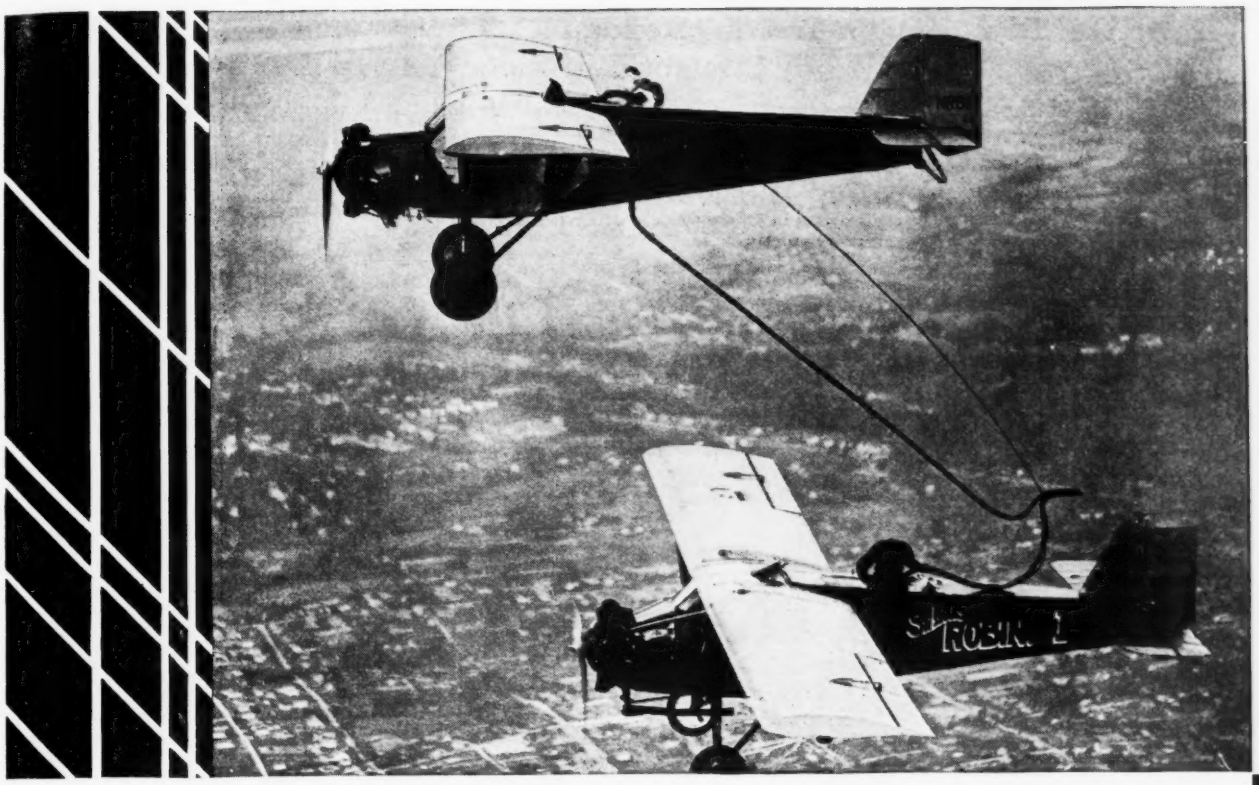
WASHINGTON, D. C., Sept. 28.—Natural gas deliveries in 1928 were 8 per cent larger than in 1927, according to a compilation of the industry for 1928 issued by the Bureau of Mines by G. R. Hopkins on Sept. 24. Oklahoma production last year fell off, but the state retained leading rank.

Texas was second in production, California third, and Louisiana fourth with an increase of 22 per cent. Total number of domestic consumers increased 10 per cent. Important increases were made on account of the Panhandle-Denver pipe line, and the Monroe-New Orleans line. Total produced and delivered last year was 1,568,139,000,000 cubic feet.

National and Wadhams Sell Ethyl

CLEVELAND, Sept. 27.—National Refining Co. of Cleveland and the Wadhams Oil Corp. of Milwaukee have negotiated license agreements with the Ethyl Gasoline Corp., of New York, according to a statement of J. C. Taylor, sales manager of the latter company.

National Refining Co. will market the anti-knock fuel under the name of White Rose Ethyl gasoline and the Wadhams Oil Corp. of Milwaukee, which was formed by the merging of that company and the Bartles Maguire Oil Co., will sell under the name of Wadhams Ethyl gasoline.



Endurance, Speed with NATURALINE!

420 hours and 21 minutes in the air, consuming throughout 3,190 gallons of Naturaline. That's the phenomenal record of the St. Louis Robin I, completed on the evening of July 30.

Two wonderful pilots, a wonderful engine, a faithful and capable refueling crew, and *Naturaline* made the combination that bettered the previous world's record by 173 hours, 37 minutes, and 28 seconds.

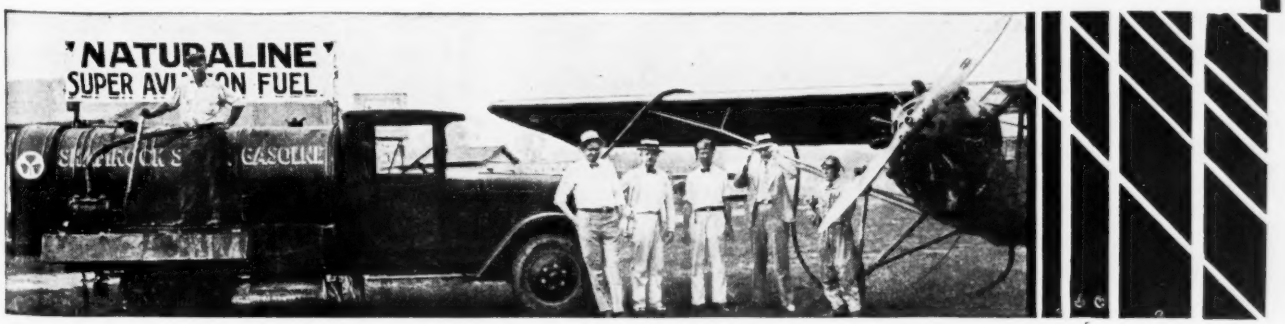
Naturaline was used throughout with such satisfying results to the flyers that when their trained ears detected a falter they asked immediately if Naturaline was being furnished as before. This great endurance flight, coupled with the known worth of Naturaline as a speed fuel, establish it as the aviation fuel par excellence.

For full information about

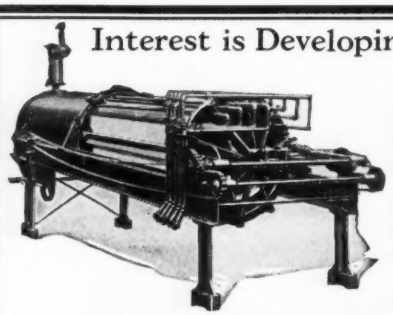
NATURALINE
THE SUPER AVIATION MOTOR FUEL

Write to
Naturaline Co. of America
Tulsa, Okla.

Naturaline's speed performance was conclusively demonstrated at the Gardner Cup Races held at St. Louis May 30th. Bringing home the first four planes in competition with five other gasoline brands. The picture above is that of "Speed" Holman, the winner, who enthusiastically endorses Naturaline.



Interest is Developing in Treating Residuum by Straight Filtration



IN spite of the millions involved in the oil industry, managements are keenly interested in pennies.

They are interested, for instance, in the Oliver United filters for treating pressure still residuum at only a few cents a barrel, making it marketable.

Write for further details of this simple straight-line process.

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SAN FRANCISCO, Fed. Reserve Bank Bldg. NEW YORK, 33 West 42nd St.
CHICAGO, 565 Washington Blvd. SALT LAKE CITY, Felt Bldg.
LOS ANGELES, Central Bldg. LONDON, W. C. 1, 150 Southampton Row
PARIS, 63 Ave. des Champs Elysees.
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Tulsa, Okla.....Philtower Bldg.
Los Angeles, Cal.....1031 So. Broadway

"What About The OILGRAM?"

—asked the executive of a gasoline company on the west coast recently of a Tulsa oil man. His answer was . . .

"If you were to wire me for Mid-Continent gasoline prices today, I would phone a member of the OILGRAM staff, and my reply to you would be the *gist of what he told me.* The OILGRAM staff is in direct and close contact with the markets almost every hour of the business day. *They know their business.*"

You too, can have the benefit of this close contact with all phases of the market at all the principal refining and marketing centers.

The service costs only $25 a quarter, or $75 a year, payable in advance. Approximately 30 cents a day—less than the cost of one wire or one phone call.

Avail yourself of this fast, daily market service today—send your order with check to the nearest mailing point.

TULSA—904 World Bldg.
CHICAGO—35 East Wacker Drive
NEW YORK—342 Madison Avenue
CLEVELAND—1213 West Third St.

Offers Prize for Slogan To Describe Valves

CLEVELAND, Sept. 28.—Offering $500 in cash prizes for the best slogans to be submitted by anyone prior to December 31, the Merco Nordstrom Valve Co. has launched a slogan contest. The company is seeking an appropriate slogan that can be used in connection with the publicizing of their valves and offer to forward a catalog to any one who wishes to try his genius in creating a slogan of not more than 10 words. The slogan can pertain to the service or function of Nordstrom valves or can be any "saying" that suggests the successful service of the valves in various industries. At the present time the slogan "Won't Leak—Won't Stick" is used.

The first prize is $250.00 for the best slogan submitted. The second prize is $100.00. The third prize $50.00. The next four prizes, $10.00 each and the next twelve prizes, $5.00 each, a total of nineteen cash prizes.

Everyone except employees of the company is eligible to enter and anyone can submit as many slogans as desired, none to be more than ten words in length.

The Nordstrom valves' principal feature is its excellent lubrication. It is of the plug cock type and is highly leak resistant because the plug is surrounded by a film of lubricant under pressure that prevents any material in the line from leaking past.

Those who desire to enter the contest are urged to send for a catalog which gives full details regarding the valves or consulting with engineers in the industry for details of the valves' merits. The company may be addressed at 343 Sansome Street, San Francisco.

Indiana Association Elects Secretary

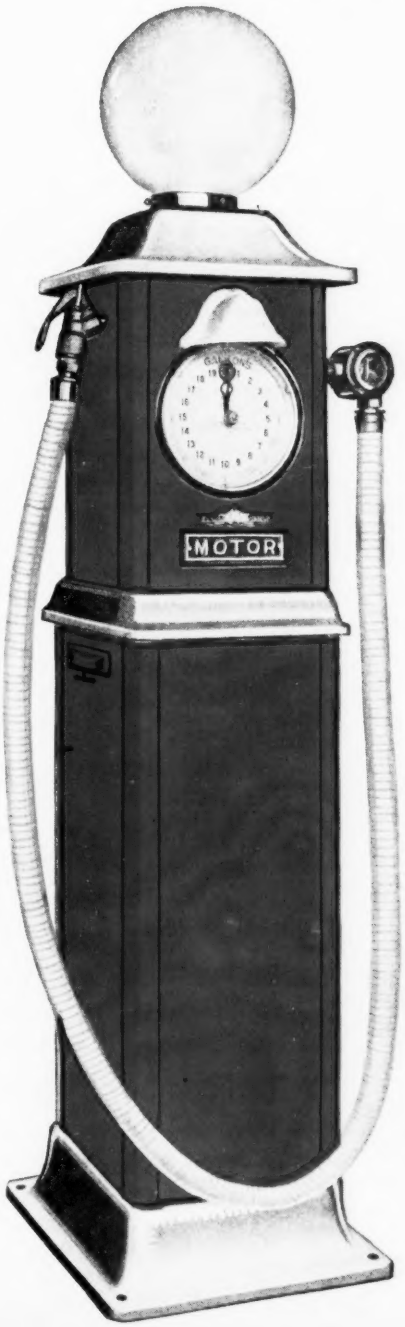
COLUMBUS, O., Sept. 28.—Max Wickersham, formerly a salesman for the Gilbert & Barker Mfg. Co., with headquarters in Indianapolis, has been elected secretary of the Indiana Oil Marketers Association.

He was in Columbus this week seeing how the fall convention of the Ohio Petroleum Marketers Association was operated. Mr. Wickersham plans to hold a convention of the Indiana association in December.

Details of convention operation were explained by I. G. Monroe and W. B. McDonald, field secretaries of the Ohio association, who "pinch hit" for W. A. Milne, secretary of the Ohio association, who was taken seriously ill two days before the convention was to open.

ERIE OFFERS YOU 8 YEARS' EXPERIENCE

Put a Premium on experience



THE world puts a premium on experience. The manufacturer with substantial experience commands the situation: the product tested and proven in use is given a uniform preference.

Oil marketers put a premium on Erie Meter Pumps. For no other has the background of eight years' experience gained in the exclusive manufacture of electric meter pumps.

Pioneered by Erie, the history of electric meter pumps is the history of Erie. Every forward step in the development of electric meter pumps has been taken by Erie first.

Incorporating all the knowledge gained in eight years—in building over 25,000 units—the 1930 Erie Meter Pump stands alone. It is a proven pump, one that you can count on to render dependable, accurate service at a minimum cost.

The Erie Meter Dial—published monthly—should prove of interest and value to you. We'll gladly send it to any oil marketer without charge. Just write us on your letterhead.

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New Stations Building

South St. Paul, Minn.—T. L. Wann, service station.
Marysville, O.—E. M. Stevens, filling station.
Cleveland, O.—Shell Petroleum Co., filling station.
Butte, Mont.—Associated Gas & Oil Co., filling station.
Keokuk, Ia.—Super Oil Co., service station.
Des Moines, Ia.—Mid-Continent Petroleum Corp., filling station.
Pequot, Minn.—H. L. Volkman, filling station.
Grinnell, Ia.—Skelly Oil Co., filling station.
Atlantic, Ia.—Standard Oil Co., Service station.
Billings, Mont.—The Texas Co., filling station.
Shawano, Wis.—Shell Petroleum Co., filling station.
Aberdeen, S. D.—Firestone Tire & Rubber Co., service station.
Angleton, Tex.—Neal Giesecke, filling station.
Independence, Kans.—Firestone Tire & Rubber Co., service station.
Victoria, Tex.—Gulf Refining Co., filling station.
Yankton, S. D.—Chas. Wieland, service station.
Lakeland, Fla.—J. G. Evans, filling station.
Rockton, Ill.—The Texas Co., filling station.
Boonville, N. Y.—Smith Oil Co., filling station.
Tifton, Ga.—Atlantic Refining, filling station.
Tifton, Ga.—Gulf Refining Co., filling station.
Melbourne, Fla.—Sun Oil Co., filling station.
Richmond, Va.—National Oil Co., bulk station.
Savannah, Ga.—Atlantic Refining, filling station.
Pittsburgh, Pa.—V. D. Dunbar, filling station.
Spartanburg, S. C.—Standard Oil Co., filling station.
New Brunswick, N. J.—Henry Vogt, Resnick & Davidson, filling station.
Charlotte, N. C.—Caldwell McDonald, filling station.
Savannah, Ga.—American Oil Co., filling station.
Greensburg, N. C.—C. E. Fogleman, filling station.
Rock Hill, N. C.—Standard Oil Co., service station.
Minneapolis, Minn.—The Texas Co., filling station.
Lima, O.—L. H. Rummel & J. H. Spear, filling station.
Bowling Green, O.—Pearl Oil Co., service station.
Dayton, O.—Refiners Oil Co., filling station.
Dayton, O.—J. D. Ryan, filling station.
Navasota, Tex.—Magnolia Petroleum Co., service station.
Hillsboro, Tex.—The Texas Co., filling station.
Butte, Mont.—The Texas Co., service station.
Hutchinson, Minn.—Lone Star Oil Co., filling station.
Fremont, Neb.—Dick Webster, filling station.
La Crosse, Wis.—Emil Rasmussen, service station.
La Crosse, Wis.—E. W. Farris, service station.
Albert Lea, Minn.—Midway Motor Co., filling station.
Van Wert, O.—J. A. Fleming, filling station.
Marion, O.—The Texas Co., filling station.
Long Island City, N. Y.—Warner Quinlan Co., filling station.
White Plains, N. Y.—Dr. Sniffen, filling station.
Minneapolis, Minn.—B. F. Goodrich Rubber Co., filling station.
Oskaloosa, Ia.—Phillips Petroleum Co., filling station.
Waverly, Ia.—Shell Oil Co., filling station.
Fremont, Neb.—The Texas Co., filling station.
Blackwell, Okla.—Phillips Petroleum Co., filling station.
Paris, Tex.—Cities Service Oil Co., filling station.
Kansas City, Mo.—Mrs. M. Fontaine, filling station.
Pierre, S. D.—The Texas Co., filling station.
Winona, Minn.—The Winona Oil Co., service station.
Minneapolis, Minn.—Pure Oil Co., four filling stations.
St. Paul, Minn.—Ben Rutman, filling station.
Glasgow, Mont.—Westland Oil Co., service station.
Glasgow, Mont.—The Texas Co., filling station.
Boone, Ia.—The Texas Co., filling station.
Sheldon, Ia.—Shell Oil Co., filling station.
Rogers, Ark.—Phillips Petroleum Co., filling station.
Arkansas City, Kans.—R. R. Pitts, filling station.
Deshler, O.—Paragon Oil Co., filling station.
Richmond, Va.—National Oil Corp., service station.
Hartford, Conn.—Aaron Service Stations Corp., filling station.
Gary, Ind.—Cities Service Oil Co., bulk station.
Bucyrus, O.—L. C. Freightner and Charles Garrett, filling station.
Akron, O.—Harry Michalsky, filling station.
Brooklyn, N. Y.—John Prinavera, filling station.
New Orleans, La.—Spur Co., several service stations.
Lufkin, Tex.—Humble Oil & Refining Co., filling station.
Lyons, Kan.—Standard Oil Co., filling station.
Higginsville, Mo.—Mr. and Mrs. Wilmot, filling station.
Manchester, Ia.—Phillips Petroleum Co., service station.
Plainview, Tex.—City Service Oil Co., filling station.
Lincoln, Neb.—Nu-Way Corp., service station.
Libertyville, Ill.—Petroleum Products Co., several filling stations.
Shelbyville, Ill.—Standard Oil Co., filling station.
Rensselaer, Ind.—Shell Petroleum Co., filling station.
Lufkin, Tex.—Joe Davis, filling station.
Napoleon, O.—Purity Oil Co., filling station.
Bloomington, Ind.—Mid-Continent Petroleum Co., filling station.
Lima, O.—Standard Construction Co., filling station.
Washington, D. C.—Morris Thrift and George Miles, filling station.
Pueblo, Col.—Richfield Oil Co., bulk station.
Houston, Tex.—Curtis Co., service station.
Beaumont, Tex.—Mrs. Alma C. Gibson, filling station.
Houston, Tex.—Continental Oil Co., service station.
Colorado Springs, Colo—Midwest Refining Co., filling station.
Ft. Worth, Tex.—Gulf Oil Co., filling station.
Springfield, Mo.—Mid-Continent Petroleum Co., bulk and several filling stations.
Houston, Tex.—Consolidated Oil Co., several service stations.
Navasota, Tex.—Henry and John Schlortt, service station.
Kokomo, Ind.—Howard County Farm Bureau association, filling station.
Sioux City, Ia.—Miller Oil Co., filling station.
Hartington, Neb.—Otto Bogner & Sons, filling station.
Kansas City, Mo.—Skelly Oil Co., service station.
Higginsville, Mo.—Sinclair Refining Co., filling station.
Sioux City, Ia.—L. L. Coryell Marketing Co., filling station.
Minneapolis, Minn.—Harney Oil Co., filling station.
Madison, S. D.—Standard Oil Co., filling station.
Mineral Wells, Tex.—Cities Service Oil Co., several filling stations.
Knoxville, Ia.—Phillips Petroleum Co., bulk station.
Iowa City, Ia.—Mid-Continent Petroleum Co., service station.
Bedford, Ia.—Independent Oil & Gas Co., filling station.
Minneapolis, Minn.—DeLaittre-Dixon Co., service station.
Minneapolis, Minn.—Swanberg & Scheefe, service station.
Sioux Falls, S. D.—Knud P. Peterson, filling station.
El Paso, Tex.—Goff-Williams Motor Co., service station.
Loraine, Tex.—J. Brown, service station.
La Junta, Colo.—Phillips Petroleum Co., filling station.
Mercedes, Tex.—Gulf Refining Co., service station.
Texhoma, Okla.—Phillips Petroleum Co., filling station.
Gonzales, Tex.—The Texas Co., filling station.
Mineola, Tex.—Humble Oil Co., service station.
Hamilton, Mo.—Diamond Oil Co., service station.
Lyons, Kan.—Phillips Petroleum Corp., service station.
Toledo, O.—Hickok Oil Corp., several filling stations.
Peoria, Ill.—A. H. Casper, service station.
Belleville, Ill.—Carl Lindow, filling station.
Newton, Mass.—Albert T. Stewart, filling station.
Savannah, Ga.—C. G. Stegin, service station.
Spartanburg, S. C.—Standard Oil Co., several service stations.

Seven Talks on Profits in Marketing

Station Manager Plan Found Better Than Bonus as Business Builder

By C. C. Dilley*

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

SINCE the time I obtained my first job as an employe of a large corporation I have many times asked this question of others as well as of myself, "What is the most important factor in any business enterprise?"

I think the answer to that question is management. In other words, the character and the ability and the industry of the men who manage or operate a business spell its success or failure.

In order that I may not be misunderstood I am going to repeat that I think Management is the most important factor in a business though, of course, there are other factors to be considered.

In support of this opinion I want to enumerate a few facts. Bradstreet's annual summary of business conditions for the year 1928 shows that a total of 20,370 failures occurred in the United States last year, the liabilities totalling over $517,000,000. In other words, approximately 1 per cent of all those engaged in business failed. Of course, you realize that these figures include only those failures that are publicly known and reported while each one of us knows of a great number of individuals and businesses that are operating at no profit or at an exceedingly small profit and cannot therefore be considered in any sense successful.

I regret that I have been unable to find the analysis of these figures which shows that a large percentage of them has been due to causes which may be grouped under the term of inefficient management.

Each of us here is familiar with the accomplishments of General Motors Corp. in a very short period of years. Much of this success is attributed to its Manager's Securities Plan, whereby certain executives were permitted and encouraged to participate in the purchase of stock of the corporation. I am going to quote from the annual report of that corporation for the year 1928 because of the importance which is so clearly attached to this plan.

"It is essential," says the report, "in developing a personnel of the degree of ability required to cope with the corporation's tremendous operating and financial problems, that the more important executives should be placed in a position from the standpoint of financial reward comparable to what they would occupy were they conducting a business on their own individual account. In no other way, it is believed, can the corporation attract to its organization the type of executive absolutely essential to its continued success. This plan took the form of Managers' Securities Co. It continues to justify its purpose."

It would not be difficult to show that many of our grest corporations have taken similar measures to retain and attract men of executive ability.

We have, then, on the one hand evidence that many failures in business are due to incompetent management and on the other hand evidence that success in business is almost inseparably associated with good management.

NOW some of you are probably wondering what connection this can have with operating filling stations. But each filling station is a complete business in itself and as such it requires a competent manager and it has been our experience that efficient managers cannot easily be found.

I think we all shall admit that when an individual has invested his own money—money which he had previously earned and saved—in a business, his conception of and attitude toward that business undergoes a fundamental change. Doubtless most of us have experienced that change of attitude in our own lives. No matter how conscientious we may have been as employes, as the partner or proprietor we see more clearly and feel more keenly our duties and responsibilities.

Accordingly, it seemed to us several years ago that if we could bring about that change in our filling station men we would have accomplished a great deal.

Now it seems to me that very few men are really ambitious. Those who insist most strongly that they want to progress are most frequently those who do not want to carry responsibility, who will not permit their comfort or leisure to be interfered with by their work and who in reality are hoping for jobs that combine large pay with a small amount of work.

BUT occasionally there will be found a man who has the determination to improve his situation and who is really awaiting an opportunity. It is with this type of man that our experience has been most fortunate. Such a man frequently lacks the capital to engage in business for himself and in many instances where he possesses the necessary capital we have found it unwise to permit him to invest it in a filling station. Regardless of the man's previous experience, and we prefer men who have not before worked in filling stations, he will require instruction and close supervision and it is well that the company be free to criticize and instruct and insist upon certain rules and regulations.

After selecting the man we make him the proprietor of a station. He is responsible to us at all times for the condition of the station; for his assistants, whom he employs; for the service given and for everything pertaining to that station. He is charged with all expense, including supplies, repairs, painting and the miscellaneous work performed by our maintenance department. He is credited with all sales. The station is checked and inspected daily by our station supervisor. At the end of the month the books indicate his profit or loss.

It has been surprising to us that such great changes have been brought about in certain stations through this plan. The station salesman realizes that every additional penny saved is to his own personal benefit, as is every additional penny of profit earned.

Now this method has proved, in the

*Benzol Motor Fuel Co., Akron, Ohio.

1879 GOLDEN ANNIVERSARY YEAR 1929

100% Pennsylvania Motor Oils

—*with an "extra" which costs you nothing*

You get an "extra" when you contract for FREEDOM 100% Pennsylvania Motor Oils—it costs you nothing.

The "extra" is that you get the product of an organization 50 years old this year—an organization which has *specialized* in the study and refining of 100% Pennsylvania Crude.

This line of motor oils is the blend of highly refined products from two FREEDOM refineries—460-470 flash Bright Stock (Sharples process) refined at the Coraopolis plant—100% Pennsylvania Crude high flash Neutrals refined at the FREEDOM plant.

Guaranteed 100% PURE PENNSYLVANIA OIL

Permit No. 31

FREEDOM 100% Pennsylvania Motor Oils will please your customers and help expand your business. A half century of fair dealing guarantees it.

Write for quotations. Immediate shipment can be made in tank cars, compartment tank cars, barrels, or drums.

Also available for immediate shipment

460-470 flash, minimum 85 Visc., low cold test Bright Stock (Sharples process).

FREEDOM 100% Pennsylvania Crude high flash Neutrals.

100% Pennsylvania Motor Oils, blended to your own specifications from FREEDOM 460-470 Bright Stock and FREEDOM 100% Pennsylvania Crude high flash Neutrals.

FREEDOM 600 Steam Refined.

FREEDOM filtered low end point Kerosene.

THE FREEDOM OIL WORKS COMPANY
Freedom, Penna.
Established 1879
Refineries at Freedom and Coraopolis, Pennsylvania

FREEDOM

case of our company, to be superior to the bonus system. A bonus system as frequently devised plans a premium upon the sale of certain products or services and in his eagerness to promote the sale of these products or services a salesman frequently loses sight of other important items or departments of his business.

In short, I think that station salesmen will produce more profitable business at their stations when they have become proprietor-minded than if they were to remain employe-conscious, even though they were upon some bonus basis.

* * *

J. L. Marsh, Youngstown, in the discussion that followed Mr. Dilley's address, said that in the company he managed until it was sold last year, Vahey Oil Co., employes had been in the habit of regarding bonuses as part of their wages and in a short time would ask for wage increases. After trying bonuses, Vahey abandoned them and put on a Christmas party each year at which it presented each station employe with a check for $100 or more.

Elimination of the bonus was announced with a statement to all employes that, "if we don't make money you will be a factor, and if we do make money we will have a present for everybody."

That was the best stimulant ever given the Vahey organization, Mr. Marsh said.

"Make your truck driver feel that he is on the same level with the president," Mr. Marsh advised. "If you stay to 6 o'clock, your truck driver will stay to 6 o'clock but if you quit at 3 to play golf, your truck driver will put up his truck and be home at 5."

Plan Prevents Car Leaving Station Without Oil

CLEVELAND, Sept. 27.—To safeguard against an auto driving out without the crankcase filled workmen leave the hood open over the oil intake pipe at the Standard Oil Co. of Ohio's lubrication station at Carnegie and E. 89th street here. The idea was worked up by Paul Porter, in charge of lubrication, for jobs of draining the crankcase and lubricating the car.

After draining the crankcase the workman lubricates the parts under the hood opposite the oil intake side. The hood on the oil intake side then is left open, and the workman completes the lubrication job.

The open hood is a reminder to the workman that he has not filled the crankcase. Mr. Porter figured that the workman would not allow a car to leave the station with the hood open, so it would be a reminder to put in oil.

If a customer complains on leaving the hood open the workman explains the procedure.

Seven Talks on Profits in Marketing

Advertising — How Should It Be Done? How Much Should Be Spent?

By N. F. Squire*

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

THE suggested title covers a lot of ground and I have been trying to figure it out for the last five years.

But to cover briefly the small amount of knowledge and facts that we possess today, or as it pertains to our particular business, we must appreciate that advertising has become a very important part of the petroleum marketing business during the past year. We have been flooded with a barrage of advertising by the major oil companies and during that year we have probably seen more Independent oil jobbers throw up the sponge and sell out because they admitted frankly that they could not compete against such merchandising methods.

Quite a number of business men seem to feel that advertising is some mysterious sort of thing that can be used only by the larger corporations. This is not true and there is nothing mysterious about it. Advertising can be done in any degree of volume according to your funds, your volume of business and through any one of a half dozen mediums.

It might be well to say that we are assuming that you have something to talk about in your advertising. That is, your products are as good, or better in some ways, than your competitors; your station outlet is in a position to perform a service that is unusual, or your policies are sincere in the interests of the public. For unless you first had these things, your problem would be to build an organization rather than advertise and your advertising, if you did not back it up, would be of little value.

But assuming that you have these things, advertising merely expresses your marketing policies and states facts about your products. These facts must be stated truthfully and in some cases even conservatively. If they are arranged in any sort of attractive form, through any kind of medium, you will get some results.

The usual mediums of advertising are newspapers, billboards, radio, direct mail, magazines, signs, etc. Large advertising campaigns use all of these mediums with billboards and radio supplying the constant contact with the public between periodical barrages of newspaper, magazine and direct mail copy.

However, as far as you marketers are concerned, in very few cases can you either afford or would it be advisable for you to do all of these things, because the location of your particular market affects the advertising medium you should use. I am thinking particularly of you gentlemen whose business is located in small towns where your market consists mainly of a few filling stations and the rest farm trade. It is obvious that radio and magazine advertising would be of little value to you. Your local newspaper, if any, and direct mail, are consequently your best mediums.

And now as to how much should be spent? Many men, particularly in the oil business, seem to think that advertising is very expensive, and it is if you look at just the dollars and cents your advertising costs you and not the results. But advertising is nothing more or less than an employe, a salesman, and whatever you pay for its services, you should get a profitable return.

If you have a particular message that you want to put across to your potential market that may consist of 10,000 car owners and if you have some particular merit that is unusual in your product that you want them to become familiar with, look upon an advertising campaign as a salesman capable of interviewing those 10,000 people, but don't spend more than it is possible for you to get back in new business and net profit.

IN FIGURING the advertising appropriation some have made the mistake of laying out one campaign and then nearly fainting when they found out how much it cost, instead of laying out the appropriation for the entire year and then if you have a campaign that is introducing a new product or expressing some new policy, and you think it is necessary to hammer that thought rather hard for a period of two months, it is all right to spend the greater part of your first six months' advertising appropriation in that particular campaign. Then you merely lay off for a while until you catch up on your appropriation again.

A common method of figuring appropriation is to take last year's sales and use it for figuring this year's advertising expenditure.

Coming back to advertising being an employe or a salesman, a check of labor expense over a number of concerns, shows that labor expense runs approximately 10 per cent of your dollars and cents of sales, so it is agreed to figure your advertising at considerably under this figure because advertising should be more efficient than the average salesman, so a figure of 8 per cent of your gross profit is used.

In some organizations where the volume of business is fairly good, this reduces to approximately ⅜-cent per gallon of gasoline, 3 cents per gallon of oil and 2 cents per pound of grease. Three-eighths-cent per gallon on gasoline may seem like a large amount, but let us divide the oil marketing business into two parts. Those who sell price and those who sell quality in a well organized manner.

A CHECK of the cost of gasoline will show a difference in the cost of 400 end gasoline as against regular U. S. Motor, of from ¼ to ⅜-cent. This advertising expense of ⅜-cent makes it cost you approximately ¾-cent extra to have an unusually good grade of gasoline and be able to shout about it. Most companies who sell U. S. Motor gasoline with no unusual service in their stations, find it necessary to reduce the price at least 1 cent and in most cases 2 cents.

And now having established an advertising appropriation it can be split up over various advertising mediums and seasons of the year, according to your own particular market conditions. I am quite sure that if you sell a product that is as good as you can buy, and if you want to operate your stations strictly in the interests of the public and advertise sensibly, you will then experience an increase in the volume of your business that is beyond anything you have even dreamed of.

*General Sales Manager, Pocahontas Oil Corp., Cleveland.

PRODUCING REFINING TRANSPORTING MARKETING

Choice crude from
our OWN WELLS
Refined in our 2
refineries
Shipped in our OWN
TANK CARS to you

CUSHING *has the* facilities to give YOU *service*

Wire, Write or Phone
for quotations

58-60 U. S. Motor Gasoline
64-66-375 E. P. Aviation
41-43 W. W. Kerosene
38-40 Straw Distillate
32-36 Gas Oil Uncracked
22-26 Fuel Oil
(Cushing or Blackwell)

The jobber or dealer interested in increased sales and added profits will consider with interest CUSHING service on petroleum products recognized for their uniform high quality, Service that extends from the well to your pump—*Cushing quality all the way.*

CUSHING

Refining & Gasoline Co.

REFINERIES CUSHING & BLACKWELL OKLAHOMA

Seven Talks on Profits in Marketing

How to Determine and Curb Losses Of Gasoline in Marketing

By J. W. McLarty*

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

FROM our viewpoint as marketers, our gasoline loss is the difference between the gallons we buy from the refiner and the gallons we deliver to our customers. This is easy enough to figure. Just add our receipts for the month to our inventories on the first of the month, and deduct our sales for the month and the inventories on the last of the month. The difference is our loss.

If we do this, we will be surprised at the amount of gasoline lost. Where did it go? Did it evaporate? Only a small part of it. Was there a temperature loss? If it is summer time, it will be quite the contrary. Where did it go? I don't know and it's too late to find out. What are we going to do about it? What can we do? It's gone. We can't stop what's gone but with a little common sense and arithmetic we can find out where it goes and maybe we can stop some of the loss.

I have seen shortages run from almost nothing to as high as 12½ per cent.

From the time we receive a tank car of gasoline on our siding until it is rung up on our cash register, there are four ways the gasoline can get away from us. These are:

1. Evaporation.
2. Changes in volume due to temperature changes.
3. Faulty equipment.
4. Carelessness and theft.

If we can estimate the first and actually determine the second of these, we should certainly be able to do a lot towards stopping the third and fourth. How can we do this?

First—EVAPORATION

If we watch our trucks while loading or our vents while we are filling a tank, we will see pouring forth a dense stream of colorless gas. Our first impression is that we are losing a large amount of gasoline and that would be the case if this were pure gasoline. But the fact is that gasoline is soluble in air and what we really see is air with a small quantity of gasoline in solution. This changes the density of the air and it is this change in density that makes the air visible. If you will look at the air over the radiator of your truck when the engine is running, you will see the same difference in density, but in this case it is due to heat and not gasoline in solution.

There are many factors which will influence evaporation, such as characteristics of gasoline handled, atmospheric temperature, and temperature changes, surface exposed, air space in tank above gasoline, agitation, etc. Losses from casinghead gasoline will be higher than from U. S. Motor fuel. Losses will be higher in hot climates and especially so where there are sudden changes in temperature. Losses will be larger in a large tank partly full than in a small tank which is completely filled.

We oil marketers haven't the time nor facilities to install a variety of recording instruments on our tanks to give us the data to determine our evaporation losses at the end of the month. Neither can we afford floating roofs, insulated tanks, breather bags, etc., which our brothers in the refinery can have with their eighty to one hundred thousand barrel tanks.

What we must have, however, is a good idea of what our evaporation loss should be.

Let each one of us run a little experiment all our own. We won't need any experimental laboratory in which to do it.

Take a clean 55-gallon drum. Weigh it carefully. Then put in 40 or 45 gallons of the gasoline you are selling and weigh it again. Deduct the weight of the drum and it will give you the net weight of the gasoline. Place the drum where it will be exposed to the sun and weather but will not be disturbed. Put a ¾-inch vent in the ¾-inch opening and leave from one to two months and weigh again. The loss in weight divided by the weight of the original gasoline will give you your evaporation loss in percentage. However, be sure you didn't lose any gasoline in handling and that the drum doesn't leak.

My own experience in Ohio is that the handling loss due to evaporation should not exceed 0.12 per cent and if you will use this figure I think you will be safe.

Second—CHANGES IN VOLUME DUE TO TEMPERATURE CHANGES

We are buying our gasoline by weight from the refinery when we correct to 60 degrees temperature and we sell by volume. In Ohio this causes a loss for the year but one which we can ascertain exactly if we will take the time and the trouble to do so.

Gasoline expands and contracts at a definite rate with each degree of change in temperature. For 58 gravity gasoline, this coefficient of expansion is .000598; for 60 gravity it is .000613. The American Petroleum Institute and the industry as a whole have adopted a coefficient of .0006 for gasoline and this is the one we will use. Now then, if we are to know what our temperature gain or loss is we must take the temperature of every truck load that goes out and correct to 60 degrees and debit or credit our gasoline stocks accordingly.

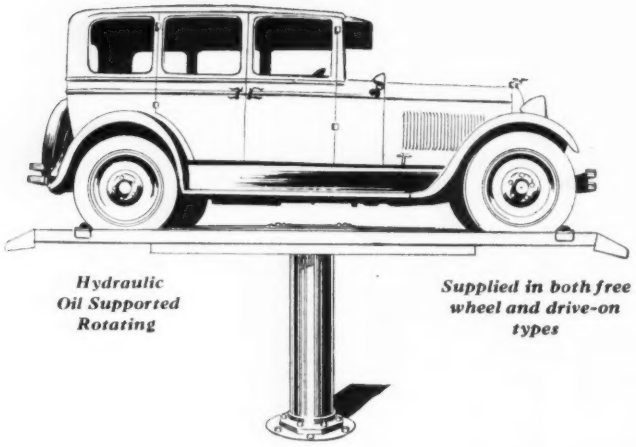
If we delivered 1000 gallons at a temperature of 40 degrees we would have a 20 degree correction to make or 20 times .0006 equals .012. This is less than 60 degrees so we subtract this from 1.0 and we have a divisor of 0.988 which divided into 1000 gallons gives us 1012 gallons at 60 degrees or we have given the customer 12 more gallons than we bought from the refinery and we are short that much.

If on the other hand, we delivered 1000 gallons at 70 degrees, we have a 10-degree correction to make and 10 times .0006 equals .006. Since this is above 60 degrees, it must be added to 1.0 giving us a divisor of 1.006 which divided into 1000 gallons gives us 994 gallons at 60 degrees, or we gave the customer six gallons less than we bought from the refinery.

In Ohio there are eight months in the year when the temperature correction is against the marketers and four months when it is in our favor. In January and February this will run approximately 2 per cent against us and in July 7/10 of 1 per cent in

*Chief Engineer, Cities Service Oil Co., Cleveland.

Meeting the *Speed* demand – the OTTAWA LIFT!



Hydraulic Oil Supported Rotating

Supplied in both free wheel and drive-on types

LUBRICATION equipment, to keep pace with modern motoring, must meet the *speed* demands of the motorist. The motorist demands the utmost in speed and efficiency from the automobile manufacturer. He demands *speed* and efficiency from the service station to maintain the standards of purchase.

The Ottawa Lift meets the *speed* demand—STOPS the "passing" business at *your* station. An oil supported, rotating lift, it is operated from your air compressor—and the power used to operate it can be used for the rest of the job, after the Ottawa is locked in position.

The Ottawa is SAFE— and it saves time! Nothing to wear out or go wrong—no special equipment necessary—everything that a good lift can be—manufactured by a company with thirty years of manufacturing experience! Easily installed from blue prints furnished.

Write today for full particulars—also prices of Ottawa Visible Pumps, Air Compressors and Air Towers!

Ottawa Manufacturing Company

226 Fuller Street **Ottawa, Kansas**

OTTAWA LIFT

GRANBERG PETROLEUM METERS

Are Precision Instruments of Established Merit

They are extensively used on Tank Trucks, Truck Loading Racks and Tank Car Unloading Lines and are universally satisfactory wherever it is desirable to secure accurate measurements.

We have made a technical and practical study of the problem of accurately measuring petroleum oils and are prepared to give expert advice and assistance on the subject.

Engineers from our home office are permanently located in the Middle West and on the Atlantic Coast, for the purpose of helping our customers with their metering problems.

It will pay you to use our meters and profit by our knowledge and experience.

GRANBERG METER CORPORATION

"Precision Meters for Petroleum Oils"

79 New Montgomery St. **San Francisco, Calif.**

our favor. The largest volume, however, moves in the summer months and the average for the year is approximately ½ of 1 per cent against us.

Third—LOSSES DUE TO FAULTY EQUIPMENT

Under this heading come losses from leaking lines, tanks, valves, etc.

These losses are usually small for we can see them and they are inexcusable for they create a fire hazard in addition to the financial loss. Keep your lines tight and your tanks caulked. If you are in doubt about the bottom of a tank, keep a few inches of water in it. If there is a small leak water will rust it tight. If a tank is under suspicion, lock it up for several days gauging it daily making temperature corrections and if it is leaking it will show up.

Don't buy cheap equipment. You will pay for it sooner or later.

FOURTH—CARELESSNESS AND THEFT

Now we come down to the human element and this is always our biggest problem. If we are not careful, this is also where our biggest losses will occur.

Be sure your tank trucks are correctly gauged. Faulty gauging of a truck may cause a serious loss. If you have a three-compartment truck and each is out two gallons, this will be six gallons for the truck. If it makes four loads per day for 25 days in the month you will be short 600 gallons at the end of the month.

Be sure your track is level and that the tank car is empty when removed.

Be sure your drivers understand that you are buying by weight and selling by volume and that you know gasoline expands. If you don't, this is what is likely to happen:

Tom Jones starts out in the morning with a load of gasoline which he buckets off to the farming trade. He started off with a thousand gallons and he finds out that he has delivered a thousand gallons to the customers and he has five gallons left over. He starts to reason something like this:

"It doesn't belong to the company for they loaded just 1000 gallons. It doesn't belong to the customers for each received what he paid for. It doesn't belong to anybody, so I guess I'll take it"—and he does.

The next thing he does is to start cheating the customer, and his next step is to figure how he can get a compartment or a truck load out of the tank station without getting caught. He has gone wrong and it is partly our fault for not starting him right.

In handling gasoline at a tank station, we should make one man responsible from the time it arrives in the tank car until it is loaded into the tank trucks. He can have all the help he needs, but he alone should be responsible. His stocks should be balanced daily under the following headings:

On hand from previous day at 60 degrees ..... ———
Received today at 60 degrees ———
Total to account for at 60 degrees ..... ———
Delivered today by volume ———
Temperature corrections, plus or minus ..... ———
On hand at end of day at 60 degrees ..... ———
Total accounted for at 60 degrees ..... ———

Any difference between the total to account for and the total accounted for is a shortage due to evaporation, carelessness or theft and should not exceed 12/100 of 1 per cent. It will fluctuate daily due to errors in gauging but the error of today will correct itself tomorrow and the monthly total will not be affected.

Now just a short summary. Returning to my first statement—our gasoline loss is the difference between the gallons we buy and the gallons we sell. How has this loss occurred?

1.—Evaporation and handling and should not exceed 12/100 of 1 per cent.

2.—Temperature loss which should not be over 2 per cent in January to a gain of 7/10 of 1 per cent in July. This should be figured daily.

3.—Faulty equipment. This should be negligible. If you can't fix your equipment, replace it.

4.—Carelessness and Theft. Be on your guard. There is no limit to this loss. I have seen shortages run as high as 12½ per cent. Balance your stocks daily and account for gasoline as you would your cash.

In the discussion that followed the presentation of this paper, S. E. McFarren, C. A. Pierce Oil Co., Akron, president of the association, said his company's evaporation and leakage losses have been reduced to 0.5 per cent a year by using a connecting vent pipe system between its gasoline tanks and an Oceco push and pull vent on the largest tank. The Pierce installation was described in NATIONAL PETROLEUM NEWS for March 2, 1927, page 43.

Mr. McLarty said that his company used a steel tape in gauging so there was no creeping which would cause an error in reading.

Courtesy Is Chief Factor Influencing Their Buying, Motorists Write

By J. D. Haire*

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

MOTORISTS are no different than any other people, they patronize a service station for the same reason that they patronize a drug store, a haberdashery shop or a meat market.

Of course, there is that small percentage of the general public for various reasons seldom trade in the same store twice. This is because of necessity, travelling, bargain hunters or the kind that says, "I'll pay you Saturday night," etc. Generally speaking most of us "buy what we want where we want to," but "why do we want to buy what we want where we do?"

As for motor fuels and lubrication and just why certain people trade at certain stations, is a question that embraces too numerous reasons to mention as well as different localities, time and conditions.

I shall relate briefly an experience that the Akron Oil Co. has had in Summit county that may or may not give some light on the question as for the past and present, at least.

Two years ago we were operating 26 stations in Summit county and at that time in addition to other pressures we keenly felt the pressure of numerous cut price retail outlets that sprung up in a short period of time and for the moment, at least mentally, it seemed that the general public was receiving the offer to buy at "cut prices" with a marked degree of enthusiasm.

Salesmen, service station salesmen, truck drivers and customers were stretching the facts ten-fold in reporting losses in gallonage and each day the attack was growing and the cry for help to throw out the "life line" before it was too late.

At that time price seemed to be the most outstanding factor and the general run of complaints and difficulties were seldom heard—they were completely side-tracked by the constant pressure and "hollering" for price.

An actual inventory showed that we still retained some business and in fact the only losses were a few large gallonage accounts that at best places but little weight on the profit scales. We naturally wondered in view of the tremendous attack from the price standpoint why we retained the majority of our customers. We knew that they carried the true reason for continuing their purchases—in view of the many opportunities to purchase motor fuels at 2 and 3 cents under our price. So we decided to ask a representative number of these customers their reasons for continued purchases.

The following form letter was mailed out to 1000 of our customers:

"Dear customer:

"The small favors in life—those easily done—are usually most appreciated.

"Also, the quickest way to learn is to ask questions of people who know the answers.

"You visit the Akron Oil stations frequently, so we come to you for information in working out an analysis of AMO Service, the results of which may in due course benefit you.

"The other half of this letter (planned to save your time and invite a quick reply) carried a few questions which will take very little time to answer.

"The information you give will be regarded as highly confidential, to be used only in a general report dealing with the essential facts, figures, and suggestions, given us by the selected group of our customers, of which you are one.

"No names will be used as sources of data.

"Your cooperation in providing your share of the information required will be greatly appreciated.

"Our station men have been informed that we are making this study.

"Thank you! "Sincerely yours,

"AKRON OIL COMPANY.

*Manager, Akron Oil Co., Akron, O.

A franchise that builds *permanent* business!

New business is desirable, of course, but it's steady trade that puts money in the bank!

The DEEP-ROCK franchise includes all rights to the *exclusive* sealed and registered drum, a new sales feature for the long famous DEEP-ROCK Prize Oils.

Every drum is sealed at the refinery, the contents certified and the drum registered by number, traceable like registered mail. When you break the seal you know you are the first to open the drum. Once emptied, the drum is scrapped.

Offer your clientele this *Positive Protection* and you will sell more oil. Write us . . . we'll have a DEEP-ROCK representative call and show you how to take advantage of all that the DEEP-ROCK franchise has to offer.

SHAFFER OIL and REFINING COMPANY
General Offices: 300 West Adams Street, Chicago, Ill.

Seven Talks on Profits in Marketing

"On your last call at an Akron Oil Station:

"What time of day did you call?
AM..... PM..... (Check which)

"Was the station man busy when you drove in?
Yes..... No..... (Check which)

"Did he run out to greet you?
Yes..... No..... (Check which)

"Did he move fast or slowly to serve you?
Fast..... Slowly..... (Check which)

"Was he courteous?
Yes..... No..... (Check which)

"Did he clean your windshield and glass?
Yes..... No..... (Check which)

"Did he check the oil in your crankcase?
Yes..... No..... (Check which)

"Did he fill your radiator?
Yes..... No..... (Check which)

"Did he volunteer to inflate your tires?
Yes..... No..... (Check which)

"Did one or more men serve you?
One....Two....More....(Check which)

"What influences your choice of service stations?
"Speed of Service? .....
"Location? .....
"Advertising? .....
"Air & Water Service? .....
"Courtesy of Men? .....
"Price? .....
"Reputation of Company?.....
"Quality of Products? .....
"Appearance of Station? .....

(Please number your first choice "1"; your second choice "2"; etc. as far as you like.)

"If you have any other suggestions or comments on service station operation, kindly note them on the reverse side of this sheet. What special services do you appreciate most?"

"We received 410 replies and the results were as follows:

1. Courtesy
2. Quality
3. Location
4. Speed
5. Price
6. Reputation
7. Air and Water Service
8. Appearance of station
9. Advertising

It must be remembered that this analysis was taken from customers exclusively and while the results shown herewith may not be a correct answer as to why these people originally patronized our stations, they do show conclusively that the reasons they were satisfied and why they continued to make purchases was by reason of the fact that the men were courteous—they were well served and it proved to our organization even at this critical time that price was fifth consideration.

Therefore, we put forth every effort to improve on the service features at our stations. We followed this up with a very well balanced newspaper campaign covering the various service features also the quality of the merchandise as well as furnishing the station salesmen with better equipment and supplies to render better service.

In addition and immediately after the survey we refused to listen to any one talking or mentioning the word "price." That was fifth consideration as far as our business was concerned. We were only interested in maintaining the quality of our merchandise and improving the courteous service of not only the station salesmen but the general salesmen, truck drivers and every one connected with the organization and we have maintained one price at all stations to all customers and for the past two years have shown very substantial increases in sales.

* * *

Mr. Haire displayed a chart showing the answers about service given in percentages as follows:

	Yes	No
Was the station man busy when you drove in?	55	45
Did he run out to greet you?	78	22
Did they move fast or slowly to serve you?	98	2
Was he courteous?	100	0
Did he clean your windshield and glass?	59	41
Did he check the oil in your crankcase?	84	16
Did he fill your radiator?	70	30
Did he volunteer to inflate your tires?	25	75

Of the 410 persons who replied 38 per cent called at the stations in the forenoon and 62 per cent in the afternoon or evening.

The Akron Oil Co. pays its station men $90 to $135 a month and bonuses run $25 to $100 a month. Since the survey was taken two years ago the company's increase in business has never been less than 20 per cent a month more than the business in the corresponding month a year before, Mr. Haire said.

"Courtesy doesn't cost very much but it pays wonderful dividends," he concluded.

The One-Stop Station — Is It *The* Station Of the Future?

By Roger B. Stafford
N. P. N. STAFF WRITER

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

THE one-stop motor service station—the station where the motorist may buy gasoline, oils, chassis lubrication, tires, batteries, brake adjustments and other ordinary services—is similar to a confection or a cordial; it is sweet or stimulating when taken in small doses, but it is likely to have a deleterious effect if taken in large quantities.

There probably is room in every community of 2500 automobiles for one one-stop or super-service station, but if this one station is prosperous, it is probable that it may be followed by another and possibly several. There is serious danger of overbuilding just as the drive-in filling station has been overbuilt the last three or four years and, when overbuilding comes few owners of these elaborate mercantile structures will be able to earn a profit that should be earned on their relatively large investments.

The idea for one-step service stations is believed to have originated on the Pacific Coast; at least this method of serving the needs of motor cars first gained prominence in California.

The idea spread only slowly east of the Rockies and really did not take hold until about four years ago. It has received its greatest impetus the last year and a half and that impetus has come mostly from tire dealers aided and abetted by tire manufacturers. There still are only a comparatively few oil company one-stop stations in the Middle West and East.

Seven Talks on Profits in Marketing

There are advantages and disadvantages in this method of merchandising. Often something that seems to be an advantage is offset by a requirement, a new demand in merchandising, that proves to be a disadvantage.

Among the advantages these may be listed:

1.—Ability to distribute the cost of a high priced central location over several lines of merchandise or service.

2.—Ability to employ a higher type of station manager because his salary can be distributed more widely.

3.—A wider distribution of other overhead.

4.—More frequent contacts between owners, or management, and customers, because the greater variety of merchandise and services will bring customers into the station more often.

5.—The casual customers for tires, batteries, brake service and such become regular gasoline and oil customers.

6.—All the ordinary day-to-day needs of a motor car can be obtained at one place—a thing the car owner is growing to like in these days of increasing traffic congestion.

Disadvantageous points include:

1.—Large initial investment in station property, and equipment, and need for much larger working capital and inventory.

2.—High rental, and increased overhead for labor, light, heat and other necessary expense.

3.—Need for high priced station manager and probably service manager to see that all customers are satisfied.

4.—Need for skilled labor in tire, battery, brake and wheel aligning departments, and competent labor in washing and lubrication departments.

5.—Need for outside salesmen to bring in customers, particularly for tires, because few tires are sold to casual buyers. This is especially true of commercial business, which is the backbone of the tire re-equipment trade.

6.—Need for road service trucks and salesmen's cars.

7.—Inability to distribute station labor to take up slack hours because specialized labor is required in too many departments.

8.—Low priced tire and battery competition coming from mail order houses, with their chain stores, chain accessory stores, department stores, "gyp" dealers and others.

9.—Inability of an oil company to give the personal attention to the business that the one-stop station requires.

It is because of the last mentioned point that the tire manufacturer in forcing the one-stop station to the fore, is taking its dealers or its promising salesmen into partnership and building and equipping stations that represent investments up to $250,000.

Officers of one tire company say unified management is the secret of one-stop station operation and they are willing to back with tens of thousands of dollars any dealer or salesman in their own organization who has demonstrated that he is an able merchandiser.

The tire manufacturers say that the one-stop station is the only logical method of serving the motor car today. They believe that the tire and battery business is a complement of the oil and gasoline business.

Many oil company sales executives say the tire manufacturers are anxious to get their dealers into the oil and gasoline business because oil and gasoline will carry the overhead for tires which have been woefully weak as trade leaders.

BUT how much business is available in the tire, battery, brake and other super services? Tire authorities estimate that the tire replacement business—that is, solid tires, casings and tubes not sold to automobile manufacturers for use as original equipment—amounted last year to $800,000,000. There were 24,500,000 motor vehicles registered at the end of last year. This means an average tire and tube sale of less than $33 per car for the year.

At an average of 15 per cent gross profit on tires and tubes, the average gross return was $4.95 per registered vehicle.

Gasoline tax returns for 45 states and estimates for New York, Illinois and Massachusetts indicate that approximately 11,000,000,000 gallons of gasoline was consumed in motor vehicles in 1928, which at an average of 16 cents a gallon without tax added, was a gross return of $1,760,000,000 or more than twice the return on the replacement tire business. Gross sales averaged more than $71 per vehicle. At an average gross margin of 3 cents a gallon on gasoline the average marginal return per motor vehicle registered last year was $13.30 per vehicle for gasoline as compared with $4.95 for replacement tires.

Assuming that motor oil consumption in gallons was 3 per cent of the gasoline gallonage, a conservative proportion, this meant that 330,000,000 gallons of motor oil was consumed by the 24,500,000 vehicles. At $1 a gallon average selling price and 40 cents a gallon gross margin, the average gross margin per vehicle was $5.38.

Add to this the average gross on gasoline and the sum is $18.68 per vehicle for gasoline and oil, or more than three and a half times the average gross margin on tires.

No wonder the tire manufacturer wants his dealers to sell gasoline and oil to carry the burden of their stores and service stations. No wonder the tire manufacturers are promoting the building of one-stop service stations while most of the major oil companies are still skeptical about them.

Unfortunately, profit and loss data on the operation of tire company one-stop stations are not available. But here are some figures, in round amounts, from an oil company one-stop station in a middle western city:

At this oil company station, gross sales on tires in 12 months ended this last summer amounted to $40,000 of which $20,000 carried a 20 per cent gross margin and $20,000 only 10 per cent gross margin, a total gross of approximately $6000. The company employed a tire salesman and advertised the tires prominently in newspapers and by direct mail. It had considerable loss from bad tire accounts.

Its oil changing and greasing pits earned $1000 gross a month. It lost money on every car it washed at an average of $1.75 a car. Its tire repair department was able to carry itself. Its brake department earned a profit.

The station had to have a separate system of books which meant separate help because it was necessary to have the accounts at the station to make collections when the customer called to pay. The head of this company recently said he would not build another tire station.

Recently an Ohio company discontinued a tire store in a fine large station and is installing additional lifts for chassis lubrication.

A few large oil companies are experimenting with the sale of tires and one has just formed a subsidiary to build a chain of one-stop stations in the larger cities. However, convincing proof that the parent company does not believe that the one-stop station will be *the* service station of the future is seen in the fact that it is enlarging its lubrication facilities and installing larger gasoline tanks at its neighborhood service stations.

One oil company at present is building a one-stop service station in a downtown location in a medium-sized city in a nearby state. However, this

company also has a half dozen neighborhood stations which will be used as feeders for its tire and auxiliary services.

The vice-president in charge of marketing of one of the largest oil companies in this country recently said his company, known for its wisdom, would rather spend $25,000 apiece for 10 neighborhood service stations than $250,000 for one grand one-stop station.

High officials of several major companies said only a few weeks ago that if the one-stop station was to become an established method of selling gasoline and motor oils that they would rather do a tank wagon business with the one-stop stations than operate them themselves.

Meanwhile, one tire manufacturer is developing a considerable chain of these stations and other manufacturers are experimenting with them.

It seems that the one-stop station will be *a* station of the future but not *the* station of the future.

Oil and Greasing Built Business When Other Things Failed

By B. B. Murphy*

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

MY BUSINESS is only a small one, but I guess you all have the same difficulties to contend with that I have. With new filling stations springing up on every corner, it doesn't seem to be in order to ask: "How can I get more business?" but "How in" one syllable word meaning "anguish" can I hold what business I am lucky to have?

I tried various solutions until I stumbled on one that approached the answer. In the first place, I fell for about every scheme for increasing gallonage that the world's brightest minds seemed to delight in fostering on the oil man.

Every time some up-and-at-'em salesman buttonholes me with another plan guaranteed to run my cash registers ragged, I just begin checking back.

"Yeh, that's the one I tried out two years ago," or "three years ago" or whatever it was, is my usual answer; because there aren't many that I didn't try out at least once.

Finally I turned to my oiling and greasing about three years ago, and started to figure on a bonus system to induce the boys to step out and grab off a little more business.

In my small company there is no greasing palace, or even enclosed greasing service. We have good substantial racks with the latest high pressure greasing equipment. These racks are high enough to work under a car properly. I bumped my head a good many times on my first rack, so I learned something there.

In addition to the thought of more oiling and greasing was the question of how to pay my men more money as time went on. I could see the impossibility of continually increasing my gasoline gallonage beyond a reasonable point. This question came up logically around the first of the year, when most employes, being human, expect a raise if their services are satisfactory.

I tried out a commission or bonus system, on all crankcase and greasing work, and, let me tell you, it was an eye-opener. My business on the racks in January, 1927, the month I started the system, was equal to that of the previous July. The following spring I had to put an extra man on, since one man was almost continuously busy on the racks. Today with three stations of my own, I find the same system a big help, although the other outlets do not happen to pull the business my original station does.

In addition to the bonus system on oiling and greasing, we use a file at each station and a monthly follow-up card system. This scheme is not at all new; probably a lot, or most of you, do the same thing. However, the real answer is the amount of commission my men draw.

To get down to brass tacks, here is the line-up of commissions:

Greasing all cars	.25
Flushing and refilling differential or transmission	.25
Spraying springs	.05
Crankcase change	.10

We have a uniform charge of $1.50 for greasing, 50 cents for flushing grease, and 50 cents for spraying springs.

Last month I started a new plan on the oil commission and made it 10 cents straight a gallon on all oil sold through the station, crankcase or otherwise. The men on each station share equally in this. They all like it, naturally, as they make more money. Also at my main station it gives the man on the front end an incentive to sell more oil, which he surely does.

The competition on rack work still exists and this I consider a healthy condition, because if all the commissions are pooled there may be some buck-passing and a consequent letdown in effort.

To give you an idea how much these commissions amount to, the men at my main station made over $40 each per month extra during the summer months. Besides this they receive the usual rate of pay for service station salesmen, or perhaps a bit more than the average.

Does all this pay me in increased sales? I think so; my thought is, that you may have the finest equipment that money can buy and feed your men up to the ears on all kinds of sales talks, but all this won't amount to much unless, in addition, your men get a direct benefit in dollars and cents for their extra effort.

I am now trying out the same oil commission basis on my two country sales trucks and although it is too early to furnish any comparative figures I believe I am on the right track.

Some figures on the proportions of oil sales to gasoline might interest you. During the last four months at my three stations the oil sales have varied from a quart to 10 gallons down to a quart to eight gallons of gasoline.

The latter figure is for July, the peak month. It is surprising that in the three stations the rate is practically uniform, although the gallonage varies considerably. In other words the men must all be trying equally hard, I believe.

I don't know whether you oil men figure our proportion of oil sales high

*President, Barberton Oil Co., Barberton, O.

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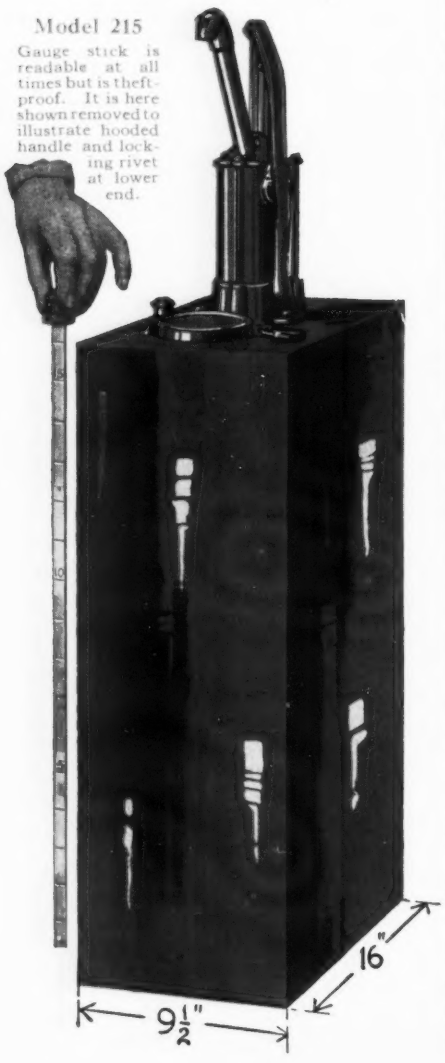
MODEL 215 "Lubri-Kit" made only by Bennett is a complete, self-contained 16 gallon capacity all-metal lube dispensing unit 9½" wide x 16" deep x 26" high over all, with all metal pump having locking handle; weatherproofed fill opening having heavy cast locking cover; self-draining metal gauge stick, readable at all times and having hooded handle which seals opening against rain and dust. The low price of Lubri-Kit (due to Bennett intensive specialization and large volume production), together with its supreme quality, has caused oil marketers to place Lubri-Kit on duty in public and private garages from coast to coast.

Write for

Lubri-Kit Bulletin to BENNETT PUMPS CORP., Muskegon, Mich. SERVICE STATION EQUIPMENT CO., Ltd., Toronto and Winnipeg. REPUBLIC STEEL PACKAGE CO. OF CALIF., Richmond, Calif. BENNETT EXPORT CORP., 32 Broadway, New York.

Model 215

Gauge stick is readable at all times but is theft-proof. It is here shown removed to illustrate hooded handle and locking rivet at lower end.



Seven Talks on Profits in Marketing

or low, but I think we are getting our share of the business. Figuring a ratio of 1 to 8 and assuming the average car gets 15 miles to a gallon, we are selling our customers a quart of oil to every 120 miles they drive. It is an uphill fight today, with oil filters and the extensive advertising of some refiners, as well as car manufacturers advocating a change of oil not more than once every 1000 or 2000 miles. Not much comfort in such sales arguments for the poor oil man.

Perhaps my experiences with my little company are only small town stuff and not of particular interest to the larger companies. Whether this is true I don't know, but I'll wager that if more of the big fellows had the nerve to try out some sort of an honest-to-God bonus system, and give their men a real share of their profits their broken hearts would soon be mended by their overflowing purses.

Personally, I wish they would, because the public ought to be better sold about the value of more frequent lubrication. If the public should become what might be called "oil minded," I think we would all be better off.

* * *

In the discussion Mr. Murphy explained that in distributing the commission of oil sales at a three-man station, the man on the gasoline pumps gets a fourth of the commission and two men on the oiling and greasing racks divide the other three fourths. The rack men get all of the commissions on greasing and spring spraying.

Aeronautics and the Oil Business

By R. A. Cavanaugh*

(Presented before Convention of Ohio Petroleum Marketers Association, Sept. 18, 19)

IT IS an admitted fact that hard work will make a success of most any job (to work hard we must be interested in what we are doing) but the great problem today seems to be to make a success as soon as possible, therefore, we want to tie ourselves to something that is growing.

For instance, 50 years ago a young man could stay on the farm and supply the towns that were growing. Twenty years ago the automotive industry proved to be a great business. Since then the movies and radio have made and probably broken many. Now aviation seems to be the infant and it would not surprise me to find airplanes, in not so many years, using almost as much oil and gasoline as the automobile does today, and I feel that is what we are all interested in.

Just a few figures to give you an idea of how fast aviation is growing in this country: In 1928 American planes flew over 10,000,000 miles or approximately double that of 1927. On March 1, 1929, there were 1598 airports against 1056 on Jan. 1, 1928. Air mail contractors were paid $765,549 in 1926, $1,654,165 in 1927 and $7,430,225 in 1928 and this in spite of a decrease in air postage rates.

Besides an increase of over 100 per cent in mileage flown, passenger traffic has increased over 420 per cent. The Department of Commerce says that approximately 10,000 planes will be built in 1929 and of course mileage flown will grow in proportion.

You will probably find the aviator depending a great deal on the oil company to supply him with the proper grade of oil for his engine, as a pilot is much more particular about his oil than someone driving an automobile. As soon as a pilot notices his oil pressure dropping he starts to look for a place to land.

One large oil company already has a chart out covering the correct grade of oil for 46 different aircraft engines, so you can get an idea of what some oil companies think of the future of this industry. While we could probably give you figures on what to use, we would have to close by saying these specifications do not hold good in every case. We have found that an oil of approximately 100-105 viscosity at 210 works very good in engines up to 200 horsepower, with 115-120 viscosity from 200 to 400 horsepower and 140 viscosity over 400 horsepower, but like an automobile it depends on the lubrication system of the engine, also the flash and fire points to stand the heat resistance, and a reasonably low cold test. I have also seen some oils that sludge in a motor and that is bad.

All engine companies are naturally trying to improve their products of which the new radial engines seem to be a prominent development, but no matter what engine good oil is the major requirement and you will notice after all hard flights that the oil comes in for a great deal of praise. And it isn't all done for advertising purposes. It does show how much the pilot depends on it, for

*Canton branch manager, the Pennzoil Co.

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NATURAL GASOLINE FOR CONTROLLED VOLATILITY

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Phillips 66 Ethyl will win you new, steady customers. Write, 'phone or wire for quotations.

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All grades of lubricating oils and greases.

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Complete with Bottle Fold and Bottles *only* $15.30

364—A very complete and practical folio made from heavy 5-oz. black cowhide. 3¼-inch pocket that holds leather handled bottle fold. Contains sixteen 4-oz. plain bottles. One-inch pocket for stationery. Leather case containing six ½ oz. jars $3.25 additional.

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614 Delaware Kansas City, Mo.

after all when he is up a few thousand feet his engine is his best friend, and as a rule he isn't going to do anything that might cause trouble with any of those ponies.

A comparison of aircraft oils at this time shows remarkable improvement over oils of six or seven years ago. With the introduction of superchargers and high compression ratios and the natural increase in engine temperatures, good oils are even more important.

I believe something should also be said of gasoline, as it is very important. I have known different grades of gas to cut the revolutions as much as 200 per minute and some of you probably know how much a pilot thinks of the way a motor tunes up.

Water is another very hazardous element in gasoline, as it might cause a forced landing. One way to combat this is to install the drawoff end of the storage tank a little higher than the other end and also chamois all gas as it goes into the ship.

At one time gasoline was thrown away by the refineries. It remained for the automobile to create a demand and now the airplane will further increase this demand, for I would say that the average plane will use 10 to 12 gallons per flying hour.

I also believe that it is a mistake to install equipment such as tanks and meters on loan, for as much as we all want this type of business we do know the expense of loaned equipment at service stations. By airports realizing from the start that they must stand the costs of such installations, their business will be much more profitable for the oil companies.

Gentlemen, get air minded in your business for it's a great game, but don't let the thrill overcome your good business judgment, as airplanes will not do away with automobiles.

* * *

S. E. McFarren, C. A. Pierce Oil Co., Akron, said that different gasolines in the market today which were tested at the Akron airport, caused a difference of 60 to 100 r.p.m. when used in the same engine.

The question of the danger of using chamois to trap water was raised but Mr. Cavanaugh said the danger from fire was less than the hazard that might be caused by moisture in the fuel.

ON THE LAZY BENCH

National Petroleum News

Real Enthusiasm

"Were you fired with enthusiasm when you tackled your first job after leaving college?"

"Was I? I never in my life saw a man so glad to get rid of me."

—*Pure Oil News*

* * *

Muriel had been to the zoo for a long time and was giving her grandmother a long account of what she had seen.

"And which animal did you like best, dear?" asked her grandmother when Muriel had finished.

"Oh, the elephant," was the reply. "It was wonderful to see him pick up peanuts with his vacuum cleaner."

—*Magnolia Oil News*

* * *

"So you're from Dar'mou'! Know Hank Field?"

"Nope."

"Know Jim Hoppe?"

"Nope."

"Know Bill Sicklesh?"

"Nope."

"My gosh, feller, don't you drink?"

—*Field Flashes*

* * *

Boarder—"Mrs. Smith, do your spectacles magnify?"

Landlady—"Yes, a little. Why?"

Boarder—"Well, would you mind taking them off when you cut my next piece of cake?"

—*Skelly News*

* * *

Her Donation

"Please, madam, would you give us a donation for the Inebriates' home?"

"Sure, come around tonight and get my husband."

—*Pure Oil News*

* * *

Mr. Goofus—"I see by the papers that the chain stores are selling more than ever before."

Mrs. Goofus—"I don't see what people want to buy so many chains for do you!"

—*Magnolia Oil News*

* * *

"Laugh this one off," said the fat man's wife as she sewed a button on with wire.

—*Pure Oil News*

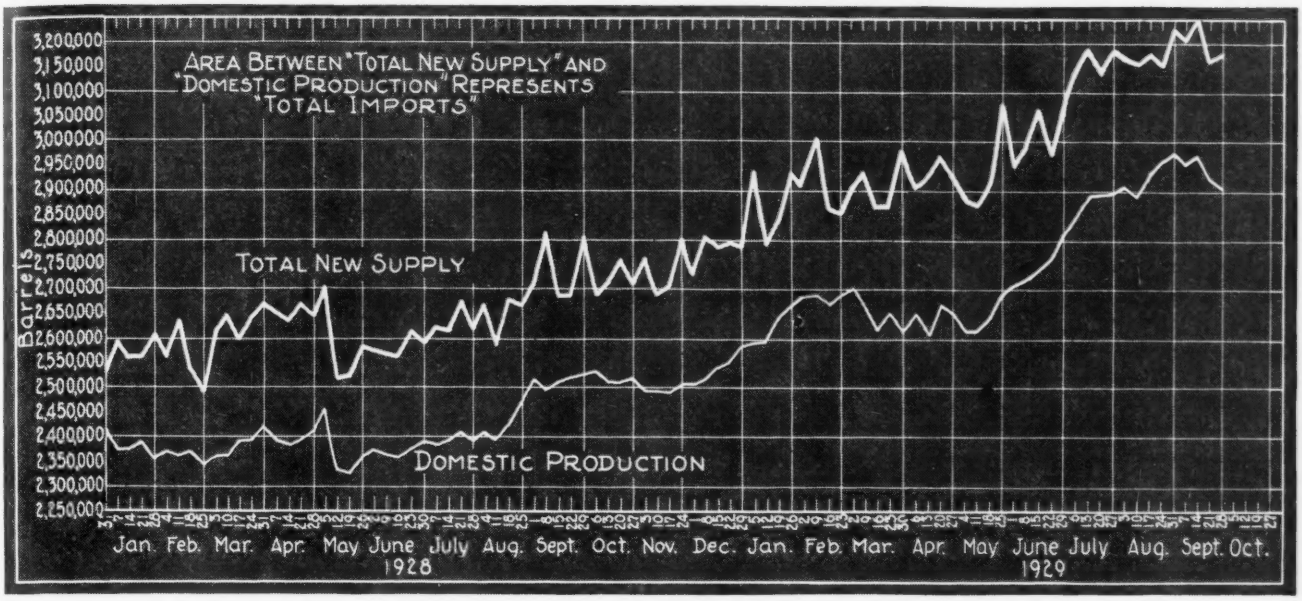
* * *

Mistress—"I saw the milkman kiss you this morning. I'll take the milk in myself after this."

The Maid—"It won't do any good, mum. He promised to kiss nobody except me."

—*Magnolia Oil News*

Daily Average Crude Oil Production and Imports



Daily average gross output of United States, by fields, for week ending with dates below as compiled by American Petroleum Institute

PRODUCTION SUMMARY

	Sept. 28	Sept. 21
Production east of Rockies	2,022,700	2,034,000
Decrease		11,300
Total production in U. S.	2,900,400	2,924,500
Decrease		24,100
Crude oil imports	274,714	244,714
Increase		30,000
Total crude supply	3,175,114	3,169,214
Increase		5,900

OKLAHOMA

	Sept. 28	Sept. 21
Allen Dome	24,450	23,450
Asher	8,200	9,350
Blackwell	3,800	3,700
Bowlegs	31,950	31,450
Braman	4,050	4,000
Bristow-Slick	22,500	21,500
Burbank	18,150	18,250
Carr City	11,450	11,700
Cromwell	7,800	7,800
Cushing	16,000	16,500
Davenport	1,350	1,350
Duncan District	7,950	8,000
Earlsboro	103,150	107,250
East Seminole	8,550	8,150
Fox	1,300	1,350
Garber	4,850	5,150
Graham	4,050	4,050
Healdton	12,550	12,700
Hewitt	7,750	7,800
Hubbard	1,800	1,750
Little River	82,550	83,700
Logan County	14,500	15,600
Maud	10,400	11,100
Mission	24,050	24,200
North Okmulgee	12,000	12,200
Oklahoma City	950	1,750
Osage (outside Burbank)	26,000	26,050
Papoose	3,150	3,150
Pearson	1,050	1,050
St. Louis	62,500	62,800
Sasakwa	10,450	10,000
Scholem-Alechem	12,800	12,750
Searight	11,100	11,650
Seminole	32,200	32,400
South Okmulgee	8,400	8,450
Thomas	800	850
Tonkawa	8,650	9,100
Wewoka	4,300	4,350
Yale-Jennings	6,550	6,600
Others	55,000	55,600
Total, Oklahoma	689,050	698,600
Decrease		9,550

KANSAS

	Sept. 28	Sept. 21
Augusta-Fox Bush	2,950	3,100
Churchill	6,900	7,700
Eldorado-Towanda	13,000	13,000
Florence-Covert	950	1,000
Greenwood County	20,500	20,600
Oxford	3,900	3,900
Peabody-Elbing	3,300	3,400
Rainbow Bend	1,050	1,050
Russell	3,100	3,100
Sedgwick County	36,350	36,200
Others	35,500	35,800
Total, Kansas	127,500	128,850
Decrease		1,350

NORTH LOUISIANA

	Sept. 28	Sept. 21
Bellevue	650	600
Caddo, light	13,200	10,850
Caddo, heavy	3,350	3,250
Cotton Valley	2,300	2,350
De Soto and Red River	3,150	3,200
Elm Grove	550	550
Haynesville	4,900	4,900
Homer	3,800	3,850
Pleasant Hill	1,000	1,000
Urania	5,600	5,800
Others	350	350
Total, North Louisiana	38,850	36,700
Increase		2,150

ARKANSAS

	Sept. 28	Sept. 21
Champagnolle	5,450	5,750
El Dorado	4,550	4,600
Lisbon	1,250	1,250
Nevada	1,000	950
Smackover, light	5,800	5,800
Smackover, heavy	45,600	45,250
Stephens	1,000	1,000
Others	100	100
Total, Arkansas	64,750	64,700
Increase		50

TEXAS (Outside Gulf Coast)

Panhandle District

	Sept. 28	Sept. 21
Carson County	10,100	10,300
Gray County	78,300	84,850
Hutchinson County	25,100	25,050
Wheeler County	750	850
Others	800	900
Total, Panhandle Texas	115,050	121,950
Decrease		6,900

North Texas

	Sept. 28	Sept. 21
Archer County	19,050	19,200
Burkburnett	9,350	9,300
Electra	12,000	12,000
Iowa Park and K. M. A.	5,000	5,100
Montague-Cooke	17,200	18,500
Wilbarger	31,500	31,700
Others	850	800
Total, North Texas	94,950	96,600
Decrease		1,650

West Central Texas

	Sept. 28	Sept. 21
Brown County	9,600	9,050
Callahan County	3,600	3,600
Coleman County	8,450	7,550
Eastland-Desdemona	7,100	7,300
Jack County	3,900	3,900
Palo Pinto County	550	550
Shackleford County	10,400	10,450
Stephens County	6,500	6,500
Throckmorton County	650	650
Young County	6,900	8,000
Others	700	700
Total, West Central Texas	58,350	58,250
Increase		100

West Texas

	Sept. 28	Sept. 21
Crane and Upton Counties	46,950	47,100
Crockett County	2,250	2,100
Howard County	38,300	36,600
Jones County	2,900	2,900
Mitchell and Scurry Counties	2,600	2,550
Pecos County	136,600	133,250
Reagan County	17,600	17,650
Winkler County	121,350	121,000
Others	2,900	3,150
Total, West Texas	371,450	366,300
Increase		5,150

East Central Texas

	Sept. 28	Sept. 21
Boggy Creek	3,450	2,850
Corsicana-Powell	7,050	7,650
Currie	400	450
Mexia	5,300	5,300
Nigger Creek	250	350
Richland	400	350
Wortham	1,050	1,050
Total, East Central Texas	17,900	18,000
Decrease		100

Southwest Texas

	Sept. 28	Sept. 21
Dale	400	400
Laredo District	9,900	10,900
Luling	10,600	10,750
Lytton Springs	950	1,000
Salt Flat	42,100	41,600
Somerset	1,700	1,500
Others	8,550	7,100
Total, Southwest Texas	74,200	73,250
Increase		950
Total, Texas (Outside Gulf Coast)	731,900	734,350
Decrease		2,450

GULF COAST

Coastal Texas

	Sept. 28	Sept. 21
Barbers Hill	19,300	21,200
Batson	1,350	1,300
Big Creek	4,650	5,900
Blue Ridge	2,300	2,650
Boling	1,400	1,350
Damon Mound	600	600
Goose Creek	5,500	5,550
Hull	8,250	8,150
Humble	6,100	6,700
Orange County	2,850	2,850
Pierce Junction	12,950	12,750
Raccoon Bend	8,850	8,000
Saratoga	1,050	1,050
Somerville	2,100	2,000
Sour Lake	2,650	2,650
South Liberty	6,300	5,700
Spindletop	22,450	23,150
Sugarland	10,750	11,900
West Columbia	5,350	6,150
Others	4,400	4,100
Total, Coastal Texas	129,150	133,700
Decrease		4,550

Coastal Louisiana

	Sept. 28	Sept. 21
East Hackberry	2,500	2,000
Edgerly	750	750
Evangeline	2,100	2,200
Lockport	4,300	4,350
Old Hackberry	2,850	2,150
Sorrento Dome	150	150
Sulphur Dome	5,600	5,500
Vinton	4,350	4,450
Others	1,900	1,100
Total, Coastal Louisiana	24,500	22,650
Increase		1,850
Total Gulf Coast	153,650	156,350
Decrease		2,700

ROCKY MOUNTAIN

Wyoming

	Sept. 28	Sept. 21
Big Muddy	2,250	2,250
Elk Basin	900	750
Grass Creek	2,100	2,250
Labarge	2,350	2,300
Lance Creek	200	200
Lost Soldier	4,000	3,950
Oregon Basin	5,200	5,200
Rock Creek	2,200	2,300
Salt Creek	34,250	32,000
Others	4,300	4,200
Total, Wyoming	57,750	55,400
Increase		2,350

Montana

	Sept. 28	Sept. 21
Cat Creek	1,350	1,400
Pondera	2,750	3,100
Sunburst	6,900	6,950
	50	50
Total, Montana	11,050	11,500
Decrease		450

Colorado

	Sept. 28	Sept. 21
Florence	800	900
Fort Collins	2,050	2,100
Moffat (Craig)	1,200	1,300
Others	2,200	2,200
Total, Colorado	6,250	6,500
Decrease		250

New Mexico

	Sept. 28	Sept. 21
Artesia	850	850
Hogback	400	400
Rattlesnake	1,700	1,800
Table Mesa	100	100
Others	400	400
Total, New Mexico	3,450	3,550
Decrease		100
Total, Rocky Mountain	78,500	76,950
Increase		1,550

CALIFORNIA

	Sept. 28	Sept. 21
Dominguez	9,000	9,000
Elwood-Goleta	20,100	20,000
Huntington Beach	43,500	43,500
Inglewood	23,500	23,500
Kettleman Hills	10,500	4,800
Long Beach	172,000	171,000
Midway Sunset	70,000	68,000
Rosecrans	7,000	6,500
Santa Fe Springs	275,000	295,000
Seal Beach	41,000	41,000
Torrance	12,500	13,000
Ventura Avenue	61,500	63,000
Others	132,100	132,200
Total, California	877,700	890,500
Decrease		12,800

EASTERN

	Sept. 28	Sept. 21
(Including Ill., Ind., Ky., O., W. Va., Pa., and N. Y.)	120,900	120,300
Increase		600
Michigan	17,600	17,200
Increase		400

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations Week Ended September 27 (By Telegraph)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended Sept. 27
Plants Reporting	12	29	25	15	12	93
Da. Av. Cap. (Bbls.)	92,000	160,200	86,600	81,500	54,900	475,200
Da. Cracking Capacity	30,700	52,600	17,200	5,000	22,700	128,200
Da. Av. Crude Runs	60,433 — 14.7	114,249 — 6.2	71,489 + 6.7	39,131 — 13.3	63,872 + 3.0	349,174 — 4.8
Da. Av. Other Oils	8,712 — 12.3	6,363 — 17.4	515 — 83.5	.....	2,447 + 23.0	18,036 — 23.8
GASOLINE—Gallons						
Stocks, Sept. 20	9,277,000	50,503,000	13,741,000	8,285,000	10,636,000	92,442,000
Prod. 9-20 to 9-27	11,082,000 — 6.1	18,101,000 — 4.0	8,746,000 + 2.8	3,124,000 — 18.9	6,273,000 + 5.7	47,326,000 — 3.3
Ship. 9-20 to 9-27	11,370,000 — 1.5	18,716,000 — 4.5	8,339,000 + 6.1	3,738,000 — 2.3	6,788,000 — 4.9	48,951,000 — 2.0
Stocks, Sept. 27	8,989,000 — 3.1	49,888,000 — 1.2	14,148,000 + 2.9	7,671,000 — 7.4	10,121,000 — 4.8	90,817,000 — 1.8
Ratio Sales to Prod.	102 6%	103.4%	95.4%	119.7%	108.2%	103.4%
KEROSENE—Gallons						
Stocks, Sept. 20	6,839,000	4,956,000	2,296,000	30,000	1,113,000	15,234,000
Prod. 9-20 to 9-27	2,323,000 — 14.2	2,687,000 — 10.6	1,769,000 + 14.6	.....	711,000 +141.8	7,490,000 — 1.0
Ship. 9-20 to 9-27	2,772,000 + 18.6	2,364,000 — 25.3	1,901,000 + 24.4	.....	381,000 — 4.5	7,418,000 — 0.3
Stocks, Sept. 27	6,390,000 — 6.6	5,279,000 + 6.5	2,164,000 — 5.7	30,000	1,443,000 + 29.6	15,305,000 + 0.5
Ratio Sales to Prod.	119.3%	88.0%	107.5%	No change	53.6%	99.0%
STOVE DISTILLATE—Gallons						
Stocks, Sept. 20	1,733,000	5,973,000	1,253,000	165,000	167,000	9,291,000
Prod. 9-20 to 9-27	586,000 — 17.7	1,136,000 + 7.1	157,000 — 15.1	125,000 — 3.1	275,000 + 21.0	2,279,000 — 6.4
Ship. 9-20 to 9-27	432,000 — 38.5	1,529,000 + 77.8	196,000 + 44.1	165,000 — 14.1	155,000 — 39.2	2,477,000 + 15.5
Stocks, Sept. 27	1,887,000 + 8.9	5,580,000 — 6.6	1,214,000 — 3.1	125,000 — 24 2	287,000 + 71.9	9,093,000 — 2.1
Ratio Sales to Prod.	73.7%	134.6%	124.8%	132.0%	56.4%	108.7%
GAS OIL—Gallons						
Stocks, Sept. 20	5,139,000	36,580,000	*4,135,000	11,570,000	6,497,000	*63,921,000
Prod. 9-20 to 9-27	1,460,000 — 9.1	1,606,000 — 26.8	1,020,000 + 80.0	1,041,000 — 29.7	2,491,000 — 5.5	7,618,000 —10.2
Ship. 9-20 to 9-27	1,715,000 — 20.1	1,514,000 — 9.3	787,000 + 15.2	985,000 +102.2	2,668,000 + 0.5	7,669,000 + 0.3
Stocks, Sept. 27	4,884,000 — 5.0	36,672,000 + 0.3	4,368,000 + 5.6	11,626,000 + 0.5	6,320,000 — 2.7	63,870,000 — 0.1
Ratio Sales to Prod.	117.5%	94.3%	77.2%	94.6%	107.1%	100.7%
FUEL OIL—Gallons						
Stocks, Sept. 20	15,555,000	47,360,000	62,385,000	32,025,000	22,827,000	180,152,000
Prod. 9-20 to 9-27	4,567,000 — 31.8	7,010,000 — 15.8	8,658,000 + 1.0	4,975,000 — 23.6	6,431,000 + 1.2	31,641,000 —13.2
Ship. 9-20 to 9-27	5,568,000 — 10.3	7,408,000 — 46.2	8,081,000 + 27.1	6,074,000 + 2.4	8,140,000 + 72.1	35,271,000 — 4.7
Stocks, Sept. 27	14,554,000 — 6.4	46,962,000 — 0.8	62,962,000 + 0.9	30,926,000 — 3.4	21,118,000 — 7.5	176,522,000 — 2.0
Ratio Sales to Prod.	121.9%	105.6%	93.3%	122.1%	126.6%	111.5%

Gasoline Produced by Various Methods, Week Ended September 27

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run	6,870,000	62.0	11,468,000	63.3	6,781,000	77.5	2,848,000	91.1	2,470,000	39.4	30,437,000	64.3
Cracked	3,664,000	33.1	5,393,000	29.8	1,304,000	14.9	.....	....	3,183,000	50.7	13,544,000	28.6
Natural	548,000	4.9	1,240,000	6.9	661,000	7.6	276,000	8.9	620,000	9.9	3,345,000	7.1
Total	11,082,000		18,101,000		8,746,000		3,124,000		6,273,000		47,326,000	

+ or — columns are % change over previous week.

***Revised due to error in previous report.**

Gasoline Stocks Fall Although Shipments Decrease

Staff Special—By Telegraph
TULSA, Oct. 1

CRUDE runs at 93 Mid-Continent refineries were reduced 17,500 barrels daily average in the week ended Sept. 27. Kansas, Oklahoma and West Texas plants accounted for the reduction. North Texas and Louisiana-Arkansas plants increased runs a little.

Gasoline production in the whole field was reduced 1,600,000 gallons. Shipments were lower than in the previous week by 1,000,000 gallons. Stocks were reduced 1,600,000 gallons. Each district except North Texas shared in this reduction. North Texas, incidentally, was the only district that increased shipments over previous week's shipments.

Kerosene production and shipments

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Sept. 27. Change in stocks figured from Aug. 30.

GASOLINE

	Gallons
Production	187,507,000
Shipments	200,754,000
Net change in stocks	—13,247,000
Ratio sales to production	107.1%

KEROSENE

	Gallons
Production	28,837,000
Shipments	27,747,000
Net change in stocks	+1,090,000
Ratio sales to production	96.2%

STOVE DISTILLATE

	Gallons
Production	8,093,000
Shipments	8,014,000
Net change in stocks	+79,000
Ratio sales to production	99.0%

GAS OIL

	Gallons
Production	33,394,000
Shipments	32,075,000
Net change in stocks	+1,319,000
Ratio sales to production	96.1%

FUEL OIL

	Gallons
Production	134,066,000
Shipments	141,052,000
Net change in stocks	—6,986,000
Ratio sales to production	105.2%

were virtually steady with stocks increasing only 72,000 gallons.

Distillate production was lower by 135,000 gallons while shipments increased 330,000 gallons. Distillate stocks were reduced 200,000 gallons.

Gas oil stocks were reduced only 51,000 gallons. Fuel production and shipments were lower but stocks were reduced 3,600,000 gallons.

P. & R. Salesmen Are Promoted

TULSA, Sept. 26.—H. E. Johnston, formerly general sales manager for the Producers & Refiners Corp., with headquarters at Independence, Kan., has been elected president of the Independent Gas & Oil Co., of Salt Lake, according to an announcement by L. R. Crawford, president of the Producers & Refiners Corp.

The Producers & Refiners owns a majority stock interest in the Salt Lake company. In additional to his duties as head of that company, Mr. Johnston will handle sales west of Parco, Wyoming, for the Producers & Refiners Corp.

A. T. Smith, assistant general sales manager, will succeed Mr. Johnston as general sales manager and will have charge of all sales east of Parco. B. L. Meece, formerly division sales agent at Chicago, will become assistant general sales manager.

Effective July 1 the Chicago office was closed, that territory having been transferred to the general office where it is handled with the assistance of Minneapolis, Milwaukee, Des Moines and Galesburg, Ill.

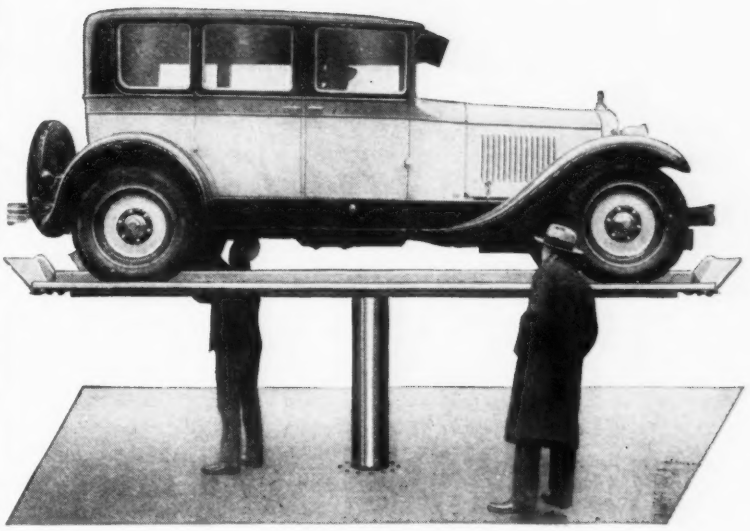
Louisiana Standard Allows 2c Dealer's Discount

(By Telegraph)

NEW ORLEANS, Sept. 28.—Standard Oil Co. of Louisiana revised its posted tank wagon price schedule on Sept. 24 to allow a 2-cent discount to dealers, a change similar to that of the Standard Oil Co. of New Jersey of Sept. 23 reported in NATIONAL PETROLEUM NEWS, Sept. 25 issue, page 212. Standard of Louisiana did not change service station prices.

In revising the tank wagon price schedule there was a reduction of 1 cent at New Orleans; an advance of 1 cent at Alexandria, Lafayette, and Lake Charles; an advance of 2 cents at Baton Rouge, Shreveport, Memphis, Knoxville, Nashville, and Little Rock; advance of 3 cents at Bristol and an advance of 4 cents at Chattanooga.

"This schedule of posted retail tank wagon prices is made to conform with practices existing today in the industry taking into consideration discounts applying to various classes of buyers from the posted tank wagon basis," the company announced.



Rotary Lift Speeds Up Service in the One-Man Station

The attendant in the one-man station needs every convenience that service equipment can provide. Crank case jobs, greasing, differential and transmission service are a part of his work. But with gas pumps to man, oil to measure, tires to test and a dozen other things to do he has no time to waste climbing in and out of pits or under grease racks.

With the car on Rotary Lift he can walk from car to pump as easily as from pump to pump. Furthermore, he never loses sight of what is going on around his station when working under Rotary Lift. He is always in the open where he can see his customers drive in. Always in a convenient position to give everybody the service they want without loss of time to them or to himself.

Install Rotary Lift in your one-man stations and see if business doesn't pick up.

Automobile Rotary Lift Co.

Memphis, Tenn.

Gott Water Cans & Coolers

Have a cool supply of clean-pure sparkling water... ready to drink at all times. No matter where you are the GOTT Water Can is health insurance.

Your supply store has them.

Gotkool

GOTT Water Cans 1½ gal; 3 gal; 5 gal; and 10 gal.

GOTT Water Coolers 3 gal; 5 gal; 8 gal; 10 gal; and 20 gal.

H. P. GOTT MFG. CO. · Winfield, Kansas

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Mid-Continent Heavy Oils Advance; Gasoline, Kerosene Ease Off

Staff Special
TULSA, Sept. 28

THE end of September found gasolines and kerosenes the most freely obtainable commodities in the Mid-Continent refinery market, with the possible exception of low gravity, high cold test fuel oils.

Exporters generally were uninterested in both gasolines and kerosenes, and jobbers apparently were too much concerned with possibilities of tank wagon revisions to do any volume buying.

Natural gasolines were in a good position for the time being as far as stocks were concerned. Buying was lighter at the end of the month, however, and prices for spot shipment were slightly lower.

Demand for distillates was fair, a majority of refiners reported. Gas oils also were in good demand, especially the zero cold test grades. High gravity, low cold test fuel oils continued to be extremely scarce. Lower gravity fuel oils were more freely offered but prices were steady.

Neutral oils moved within a narrower price range. Bright stock was scarce. Wax was steady.

Gasolines

Spot demand for gasolines was comparatively light the last week of September, and prices moved lower in some districts. In others the price range became wider. For the Mid-Continent as a whole, the range of prices for 58-60 U. S. Motor on Sept. 28 was 6.625 to 7.75 cents, f.o.b. group 3.

Jobbers have ordered their maximum quotas on contract, refiners report, but have not done any volume buying in the open market. They have let their contract requirements keep them as well supplied as possible without running the risk of having any gasoline in storage in the event there is a tank wagon revision downward.

The excellent motoring weather which has prevailed throughout September kept consumption at high levels and there was a feeling generally that there would be no change in tank wagon prices that month.

Jobbers and refiners were not so optimistic regarding October. Many of them apparently were expecting some change before the end of the month. One or two refiners who had some gasoline in storage placed some rather attractive prices on the goods for resale in order to clean out storage before consumption became lower.

The result of this action has been to widen the price range for gasolines, especially in Oklahoma. Some of the refiners who have plenty of contracts continued to sell occasional cars of 58-60 U. S. Motor, at 7.75 cents a gallon, but others sold their goods at 6.75 cents and up, for resale and in some instances direct to the trade. The majority of quotations, however, ranged from 7 to 7.75 cents a gallon.

North and West Texas refiners did not have such a wide range of quotations, but their prices generally were about in line with the Oklahoma refiners' low prices.

Arkansas and Louisiana refiners reduced their quotations for differential shipment to 7.50 cents a gallon Sept. 26, while their quotations on a group 3 basis generally were 7.25 cents, with an occasional quotation as low as 7 cents.

Kansas refiners generally made no changes in their prices during the week.

Higher gravity gasolines were getting a little more play, especially from accounts in the northern states. The demand was not sufficient, however, to cause any stiffness in prices.

Kerosenes

North Texas refiners late in the month offered considerable quantities of kerosene at prices ranging from 4.50 cents up. The lower priced goods, however, was untreated. The treated grades brought from 4.75 to 5 cents in that district.

This situation reacted to some extent on Oklahoma, especially since demand was light throughout the week, and prices were from 5 to 5.50 cents for 41-43 w.w. grade. The higher quotation was from major refiners who had sufficient storage facilities to store their goods in anticipation of a better demand later in the season.

Conflicting opinions were expressed as to the future of kerosene. Some refiners were of the opinion little fall plowing had been done and that a better demand would develop within the next three or four weeks. Others doubted that the demand would improve, because more gasoline was being used in tractors, in their opinion, and also because much of the fall plowing already had been completed.

Natural Gasolines

The heavy buying of natural gasolines the last two weeks of September placed manufacturers in an advantageous position as far as stocks were concerned, but since much of the buying was for delivery over October, considerably more buying will have to develop between now and October 15 if the present statistical position is to be maintained.

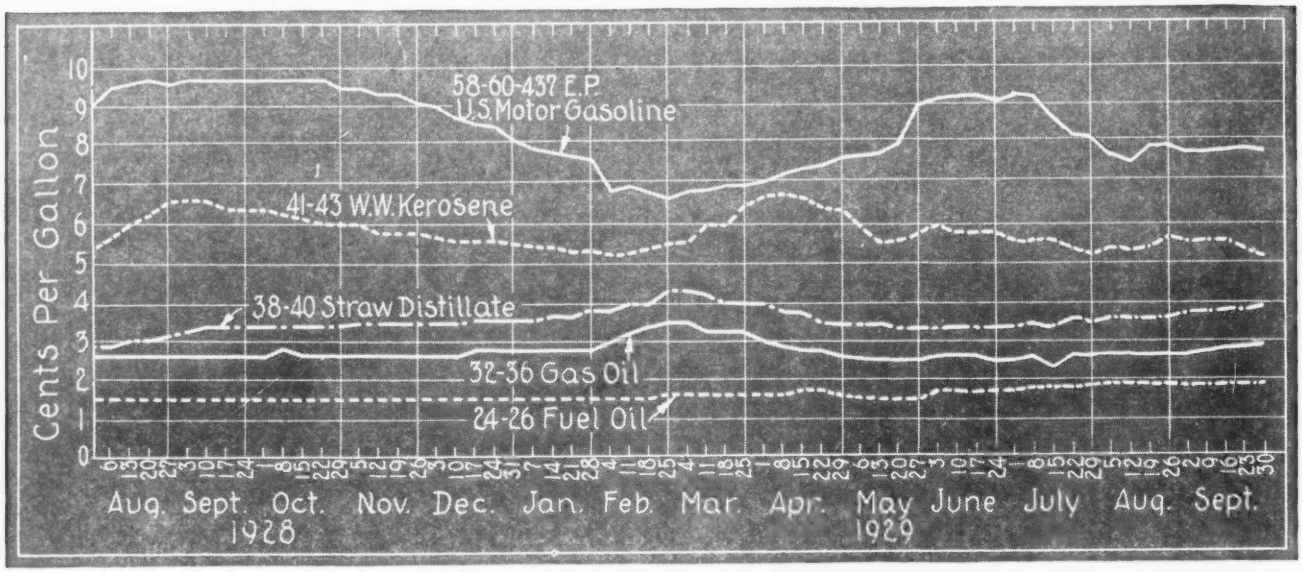
Spot buying was considerably lighter toward the end of the past week, and some of the manufacturers who had not shared in the previous buying, and who also desired to clean up stocks as much as possible before the end of the month offered their goods at prices which lowered the general level slightly.

Grade AA was the most actively sought of the naturals. Inquiries were received in larger volume from eastern refiners which would indicate they were preparing for winter gasolines.

Distillates, Gas Oil, Fuel Oils

With kerosene demand comparatively light several refiners who make both kerosenes and distillates are cutting deeper into their kerosene ends for distillates. The result has been

Current Prices of Principal Mid-Continent Refined Products



Prices shown are in Group 3 basis and extended to date shown in Refinery Market Tables Section of this issue

a slight increase in production, but demand apparently has been sufficiently good to prevent any noticeable accumulation of stocks. Prices were steady throughout the week.

Gas oils were generally unchanged in both price and demand although buyers of recycle gas oil continued to comb the market for goods.

Virtually all grades of fuel oils advanced from 2.50 to 5 cents a barrel during the week, the higher gravities leading the way. The demand for all grades of low cold test fuels continued good.

Bright stock continued to be in excellent demand. Neutral oils were somewhat easier as far as demand was concerned. Wax prices were unchanged but inquiries were reported improved in volume.

N. C. Oil Jobbers Condemn Commercial Discounts

GREENSBORO, N. C., Sept. 27.—Independent oil men in North Carolina have sent a resolution to the Federal Trade Commission approving the marketing code of ethics but condemning the practice of allowing commercial discounts on gasoline and suggest that the granting of such discounts be discontinued.

The letter was sent to the Federal Trade Commission on Sept. 23, and a copy to the American Petroleum Institute. The resolution was adopted by the North Carolina Independent Oil Jobbers at a meeting here. The resolution sent by L. H. Martin, secretary and treasurer, follows:

"The North Carolina Independent Oil Jobbers approve the code of practices authorized by the Federal Trade Commission except Rule 21 Group 2 which refers to commercial accounts. We feel that the practice of wholesale or retail marketers of giving or extending commercial prices on gasoline has caused practically all of the demoralization of prices and we as a body condemn such practice, and respectfully suggest that the granting of all commercial prices be eliminated."

Shell Enters Savannah, Ga.

RICHMOND, Va., Sept. 27.—The Shell Petroleum Corp. is breaking ground for a bulk plant, office building, and a service station at Savannah, Ga. Total investment is expected to be about $30,000. A long term lease has been acquired from a railroad company.

Tenn. Charges Agreement To Fix 'Gas' Prices

NASHVILLE, Sept. 27.—Tennessee state officials again are looking into the oil industry. This time it is over the marketing code of ethics, and especially on a possible combination to fix prices so oil dealers in the state would follow those set by the Standard Oil Co.

Charles M. McCabe, commissioner of finance and taxation, said he has been "reliably informed" that an agreement to follow Standard Oil's price was reached at a meeting of oil men in the state at a meeting about Sept. 1 in Nashville.

McCabe has asked Attorney General L. D. Smith for an opinion as to whether such an agreement is a combination to fix prices, and if legal steps can be taken to break it up. McCabe said the state stands to lose about $150,000 on its gasoline requirements as oil men are refusing to allow the 2 cents off Standard's tank wagon price discount.

Prices 10 Years Ago
Sept. 29, 1919

	Oklahoma	Penna.
50-60 U. S. Motor.....	17.00–17.25c	20.00–20.25c
80-84 Natural	21.00–21.25	.....
Kerosene (41-43 Okla.; 47 w. w. Pa.).....	9.75–10.00c	13.00c
Fuel Oil (24-26 Okla.; 38-40 Pa.)	$0.75–$0.80	5.50c
Crude (Okla. 35-35.9)....	$2.25	$4.25
Chicago tank wagon.....	.....	21.00c

Prices A Year Ago
Oct. 1, 1928

	Oklahoma	Penna.
58-60 U. S. Motor.....	9.7358c	11.75–12.25c
Grade A Natural.....	9.50–9.75c	.....
Kerosene (Okla. 41.43; Pa. 47 w. w.).....	6.25–6.50c	8.25–9.00c
Fuel Oil (Okla. 24-26; Pa. 36-40).....	$0.65–$0.675	4.50–4.75c
Crude (Okla. 35-35.9)....	$1.31	$3.25
Chicago tank wagon.....	.....	15.00c

Chicago Resale Market

Burning Oils Feature Chicago Market

Staff Special
CHICAGO, Sept. 28

A CONTINUED active demand for distillate, zero gas and fuel oils, along with a scarcity of these products for prompt shipment, were the outstanding features of the past week in the Chicago resale market.

Few sellers were able to offer any large amount of oils, suitable for use in home burners, for immediate shipment and the companies which had these grades were generally selling only to their regular customers and not seeking any new business. Quite a few of the carlot marketers were not quoting on the present market and were accepting only a few orders for shipment over October.

The distillates, straw and dark zero gas oils, 28-30 and 18-22 zero fuel oils were the scarcest commodities. Several buyers said they had hunted high and low but were unable to locate any of the latter two grades for spot shipment. The few sales reported were generally 2.50 to 5 cents per barrel higher than at the close of business last week.

Divergent reports were heard regarding inquiries for October delivery. Several sellers reported numerous inquiries and said they were able to place orders at approximately 5 cents per barrel higher than the general spot market. Other sellers said they were receiving few inquiries and found buyers unwilling to pay higher prices for October delivery. Most of these buyers were looking forward to a period of "Indian Summer" and figured that demand for zero oils would be appreciably lessened. Several sellers reported that most of the burner oil distributors already had filled their storage and would not be in the market unless they received an unexpectedly heavy demand from oil burner owners.

The spot gasoline market continued quiet, with practically no change in quotations since Sept. 21. The major refiners still quoted U. S. Motor at 7.75 cents, while other sellers offered goods at 7 cents and up. Carlot marketers reported they could buy freely in north and West Texas at 6.75 cents and also at this figure from a few Oklahoma refineries. Some sales of U. S. Motor direct to jobbers at 6.75 and 6.875 cents were reported, but these were the exception rather than the rule.

The Chicago post office gasoline contract for the fourth quarter of 1929 was let during the past week. This contract calls for approximately 300.000 gallons of U. S. Motor specification gasoline, distributed over the three month period. However, considerably more than one-third of this will be used during the month of December, when the Christmas mailing rush is on.

The Jewett and Sowers Oil Co. were the successful bidders on the basis of the average price shown in the Chicago Journal of Commerce, date of shipment, with a maximum of 7.125 cents, f.o.b. Group 3. They also receive 0.5 cent additional for handling. Four other companies bid for this business on practically the same basis, except that their maximum prices ranged from 7.375 to 8 cents.

Several companies reported an increased call for higher gravity gasolines this week, while others said they had experienced only normal demand. Prices on these grades, as a rule, ranged approximately 0.125 cent lower than at the close of business last week.

The kerosene market continued in the doldrums. Most sellers reported very little spot demand and many of them said that their business this year was considerably below normal. Prices continued their downward trend and the 41-43 w.w. grade was generally quoted 0.125 to 0.25 cent lower by Sept. 28. The bulk of sales ranged from 5 to 5.375 cents, although some were reported as low as 4.75 cents.

Occasional periods of precipitation are forecast for the Standard of Indiana territory the coming week, with temperatures hovering close to normal.

CLEVELAND, Sept. 30.—At the American Gas Association convention to be held at Atlantic City October 14 to 18, inclusive, an exhibit is planned by Merco Nordstrom Valve Co. All types and sizes of Nordstrom valves used in the gas industry will be shown and district managers from various offices throughout the country are to attend the convention and greet visitors.

Merco Nordstrom Valve Co. manufactures a lubricated plug cock type of valve that is in wide use in the gas industry and is also extensively used in the petroleum and other industries. Catalogs are to be distributed and also folders giving details of a prize slogan contest that has just been inaugurated by the company, offering $500 in cash prizes for the best slogans about Nordstrom valves.

The Brookins "Pridemark" is *Your Guarantee*

In the future, as in the past, Brookins will continue to manufacture and sell the best service station equipment possible to build.

IN the long run it pays . . . to get the best. Whether it's shoes, tires or oil measures, you'll be money ahead in the end.

Take Brookins Measures, for instance. They're the best measures you can buy. They'll last longer . . . give better satisfaction. And, after all, it's *satisfaction* that counts.

Yet this satisfaction didn't "just happen". For Brookins Measures were designed by men who had *you* in mind. They developed these measures to fill *your* needs . . . made them the handiest, toughest and neatest measures to be found anywhere.

This fact is proved by Brookins constant leadership . . . a leader in volume of sales and a leader in presenting new and specialized equipment to fill new and definite needs.

See your jobber salesman

Ask your jobber salesman to show you the Brookins line. Then decide to outfit your stations completely . . . with Brookins. If your jobber doesn't handle Brookins equipment, drop us a line, and we'll refer you to the nearest one who does.

BROOKINS MFG. COMPANY
Hawthorne and Albany Streets
Dayton, Ohio

Brookins
SERVICE STATION EQUIPMENT

"AN HONEST MEASURE FOR HONEST OIL"

Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

Comparative Prices of 58-60 U. S. Motor Gasoline, 437 E. P., Group 3 and Point of Origin, to Jobbers Only

In Effect September 30

	Price F.O.B. Group 3	*Price F.O.B. Point of Origin*	*If for Particular Destination*
Oklahoma	7.7067 (Wt. Avg.)	7.7067 (Wt. Avg.)	
Kansas	7.25-7.50		S. O. Neb. & Ind. Ter., etc.
Kansas		7.7500 (Wt. Avg.)	Kansas only.
North Texas	7.00	6.875-7.00	
West Texas	6.875-7.00	6.625-7.00	
Louisiana-Ark.	7.25		Mich., Ohio & Indiana.
Louisiana-Ark.		7.50	State or differential haul.
Indiana-Illinois	7.125-7.75	*	S. O. Ind. territory except Detroit and vicinity. For Ohio on delivered basis only.

*Shipments made from E. Chicago, Ind., and Wood River, Ill., according to conditions and freight rates; no prices F.O.B. point of origin can be given.

Weighted Average Prices

OKLAHOMA

	Sept. 30		Sept. 23		Sept. 16	
	No. of cars	Price	No. of cars	Price	No. of cars	Price
58-60 U. S. Motor, 437 e. p.	104	7.7067	73	7.6747	66	7.7159
60-62 437 e. p. gasoline	4	7.6250	1	8.0000	No sales reported	
60-62 400 e. p. gasoline	8	7.7500	2	8.0000	2	8.0000
64-66 375 e. p. gasoline	3	8.4583	No sales reported		No sales reported	

A wide range of prices prevailed in Oklahoma the past week. The weighted averages shown above do not reflect this range, but it can be seen that the bulk of 58-60 U. S. Motor continued to move at prices above 7.50 cents a gallon. There were enough goods reported below this figure to be a factor in the market, but it is doubtful if enough moved from non-reporting refiners to have caused any material change in the weighted average, had they been included in the compilations.

KANSAS

	Sept. 30		Sept. 23		Sept. 16	
	No. of cars	Price	No. of cars	Price	No. of cars	Price
58-60 U. S. Motor, 437 e. p.	2	7.7500	2	7.7500	5	7.9250

Little change was noted in the weighted average prices for Kansas shipments the past week. Quotations on a group 3 basis also were generally unchanged.

GASOLINE AND NAPHTHA

OKLAHOMA	Prices Sept. 30	Prices Sept. 23	Prices Sept. 16
48-50 450 e.p. naphtha...	7.25 – 7.50	7.25 – 7.50	7.375– 7.50
50-52 450 e.p. naphtha...	7.25 – 7.50	7.25 – 7.50	7.375– 7.50
56-58 450 e.p. gasoline...	6.75 – 7.25	7.00 – 7.25	7.125– 7.25
58-60 450 e.p. gasoline...	6.875– 7.375	7.00 – 7.375	7.25 – 7.50
64-66 390 e.p. gasoline...	7.875– 8.125	7.875– 8.125	8.00 – 8.25
68 70 350-360 e.p. gasoline	8.00 – 8.50	8.00 – 8.50	8.25 – 8.50

†Prices nominal ††Only one refiner quoting *Quotations only

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

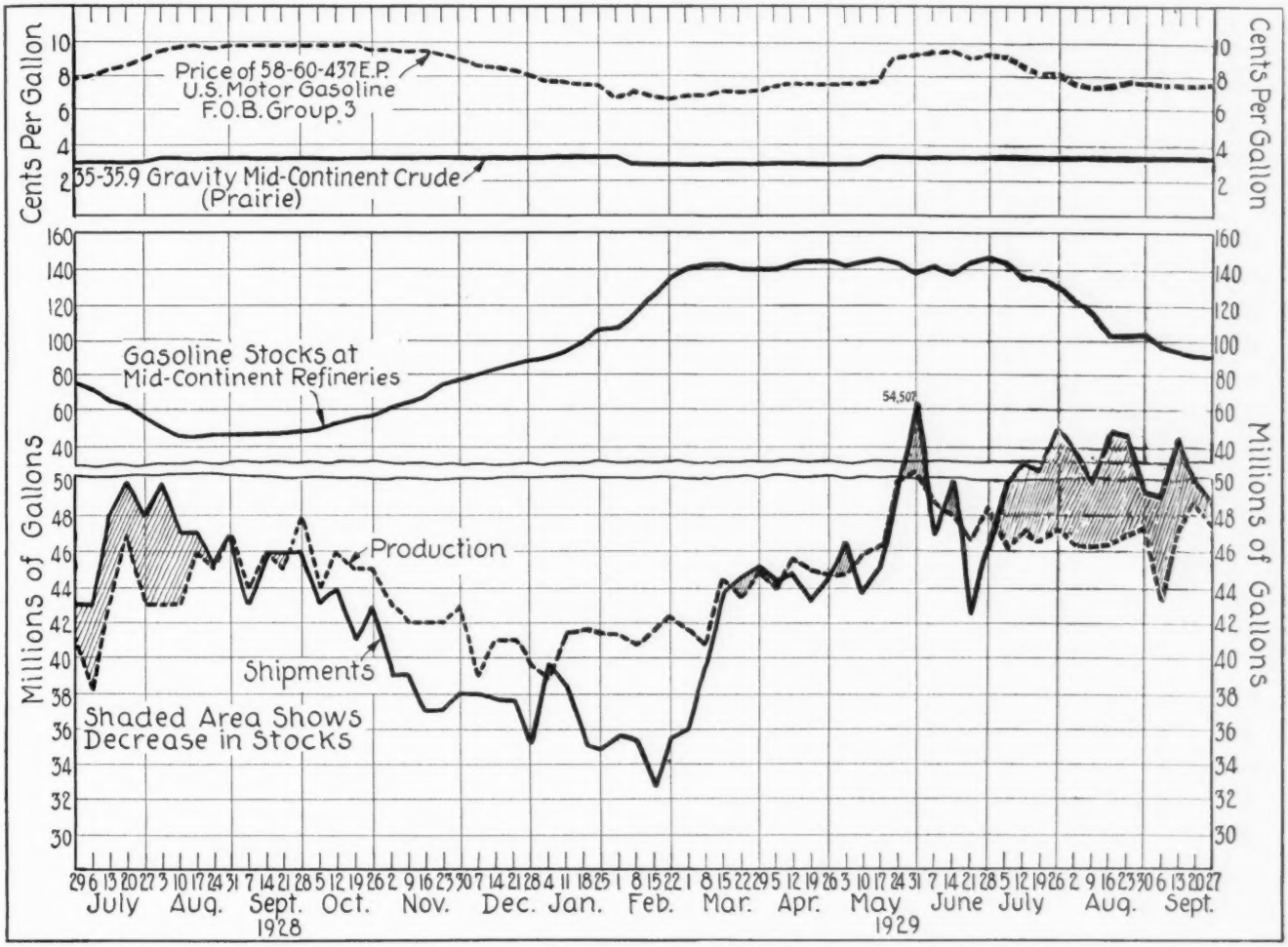
	Prices Sept. 30	Prices Sept. 23	Prices Sept. 16
58-60 U.S. Motor, 437 e.p.	7.00 – 7.75	7.00 – 7.75	7.25 – 7.75
60-62 437 e.p. gasoline...	7.125– 7.875	7.25 – 7.875	7.375– 7.875
60-62 400 e.p. gasoline...	7.50 – 8.00	7.625– 8.00	7.625– 8.00
64-66 375 e.p. gasoline...	7.875– 8.125	8.00 – 8.125	8.00 – 8.25

(Continued on Page 130)

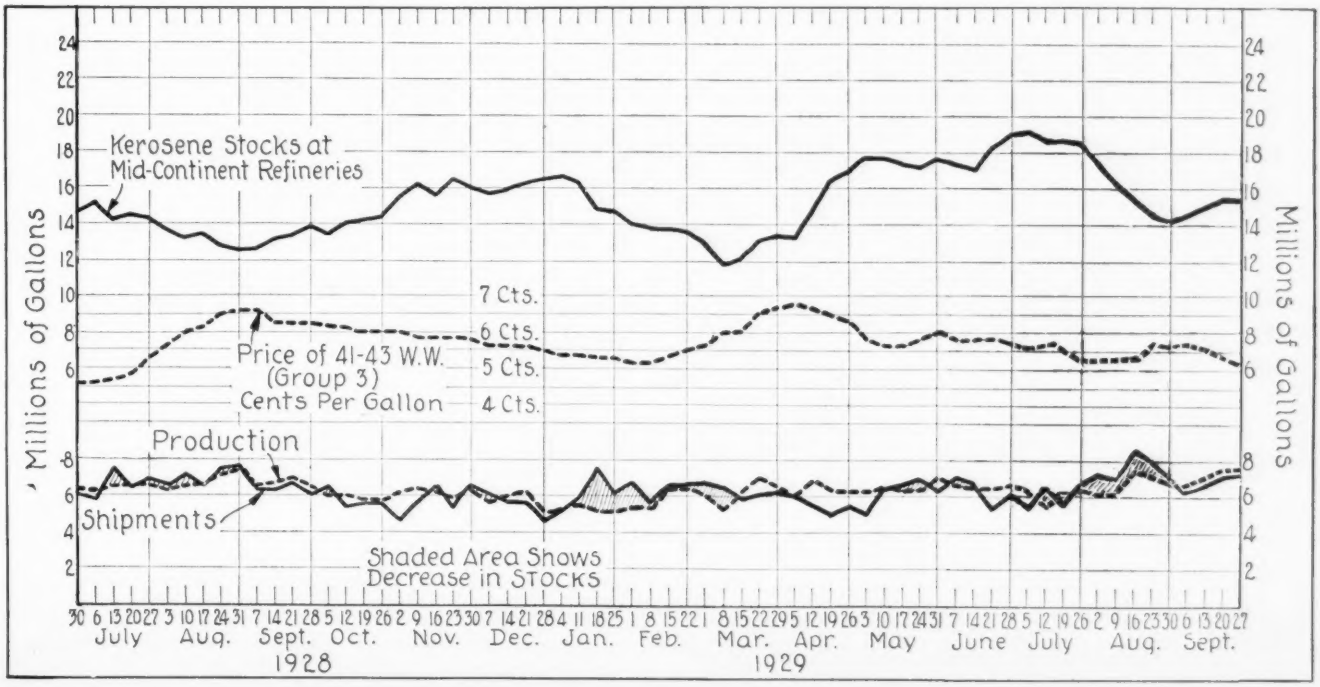
**Represents Both Sales and Quotations.

Barometer of Mid-Continent Refinery Market—Week Ending September 27

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Cents Per Gallon
Price of 58-60-437 E.P. U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude (Prairie)
Gasoline Stocks at Mid-Continent Refineries
54,507
Millions of Gallons
Production
Shipments
Shaded Area Shows Decrease in Stocks
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1928
1929

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 122



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

PENNSYLVANIA

	Prices Sept. 30	Prices Sept. 23	Prices Sept. 16
52-54 Naphtha	8.00 – 8.25	8.25 – 8.75	8.25 – 8.75
54-56 Naphtha	8.00 – 8.50	8.25 – 8.75	8.50 – 8.75
58-60 U.S. Motor 437 e.p.	8.50 – 9.25	8.625– 9.25	8.625– 9.25
60-62 400-410 e.p. gasoline	8.75 – 9.50	9.00 – 9.50	9.00 – 9.50
64-66 390 e.p. gasoline	9.25 – 9.75	9.25 – 9.75	9.25 – 9.75
68-70 Str-run gas 350-360 e.p.	10.25 –10.75	10.25 –10.75	10.25 –10.75

OHIO (Quotations of S. O. Ohio. 4c state tax to be added.)

U. S. Motor Gasoline

Ohio, delivery at any point	10.50	10.50	10.50

KANSAS (F. O. B. refinery Kansas destination)

60-62 400 e.p. gasoline	8.00 – 8.125	8.00 – 8.125	8.125
64-66 375 e.p. gasoline	8.25 – 8.375	8.25 – 8.50	8.375– 8.50

NORTH TEXAS

‡45-47 450 e.p. naphtha			6.50 – 6.75
56-58 450 e.p. gasoline	6.625– 6.75	6.75	6.75
58-60 450 e.p. gasoline	6.75	6.75	6.75
58-60 U.S. Motor 437 e.p.	6.875– 7.00	6.75 – 7.125	6.875– 7.00
60-62 400 e.p. gasoline	7.125– 7.25	7.125– 7.25	7.25
64-66 390 e.p. gasoline	7.375– 7.50	7.50 – 7.75	7.625
64-66 375 e.p. gasoline	7.50 – 7.75	7.75	7.625– 7.75
68-70 350-360 e.p. gasoline	8.00 – 8.25	8.00 – 8.25	8.125

‡Gravity changed from 48-52 to 45-47 Aug. 12.

****WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)**

50-52 naphtha	6.25	6.25 – 6.50	6.625
56-58 437 e.p. gasoline	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
58-60 U. S. Motor 437 e.p. gasoline	6.625– 7.00	6.75 – 7.00	6.75 – 7.00

NORTH LOUISIANA (N. La., Ark., and Miss. destination)

58-60 390 e.p. gasoline	7.50	7.75	7.75

ARKANSAS (Ark., N. La. and Miss. destination)

58-60 U.S. Motor 437 e.p.	7.50	7.75	7.75

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

54-58 U.S. Motor 437 e.p.	7.25 –10.50	7.25 –10.50	7.50 –10.50
58-61 375-400 e.p. gasoline	11.00 –11.50	11.00 –11.50	11.00 –11.50
42-45 Engine Distillate 445-480 e.p.	7.50 – 8.00	7.50 – 8.00	7.50 – 8.00

NATURAL GASOLINE

(Note: End point of all grades, not over 375 F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

OKLAHOMA

Grade AA, 80-87.9, 90% Recovery	6.625	6.75 – 7.00	6.75
Grade A, 72-79.9, 90% Recovery	6.625	6.75 – 7.00	6.75
Grade BB, 84-92, 85% Recovery	*6.50	6.75 – 7.00	6.75
Grade B, 76-83.9, 85% Recovery	*6.50	6.75 – 7.00	6.75
Grade C, 80-90, 78% Recovery	*6.50	6.75 – 7.00	6.75

NORTH TEXAS (F. o. b. Breckenridge)

Grade AA, 80-87.9, 90% Recovery	6.625	6.75 – 7.00	6.75
Grade A, 72-79.9, 90% Recovery	6.625	6.75 – 7.00	6.75
Grade BB, 84-92, 85% Recovery	*6.50	6.75 – 7.00	6.75
Grade B, 76-83.9, 85% Recovery	*6.50	6.75 – 7.00	6.75
Grade C, 80-90, 78% Recovery	*6.50	6.75 – 7.00	6.75

NORTH LOUISIANA (F. o. b. Monroe District)

Grade AA	†7.00	†7.00	†7.00
Grade BB	†6.75	†7.00	†7.00
Grade C	†6.75	†7.00	†7.00

CALIFORNIA

75-85, 375-390 e.p. blend	8.00 – 9.00	8.25 – 9.00	8.50 – 9.00

†Prices nominal ††Only one refiner quoting *Quotations only

BURNING OILS

PENNSYLVANIA

	Prices Sept. 30	Prices Sept. 23	Prices Sept. 16
45 w.w. kerosene	6.375– 6.50	6.25 – 6.50	6.25 – 6.50
46 w.w. kerosene	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
47 w.w. kerosene	7.00 – 7.50	7.00 – 7.50	7.00 – 7.50
300 mineral seal	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

41-43 w.w. kerosene	5.00 – 5.375	5.25 – 5.50	5.25 – 5.625

OKLAHOMA

41-43 w.w. kerosene	5.00 – 5.50	5.00 – 5.50	5.375– 5.75
42-44 w.w. kerosene	5.25 – 5.75	5.50 – 5.75	5.75 – 6.25

KANSAS (F. O. B. refinery Kansas destination)

41-43 w.w. kerosene	5.75	5.75 – 6.00	6.00 – 6.125
42-44 w.w. kerosene	6.00	6.00 – 6.25	6.25 – 6.375

NORTH TEXAS

40-42 w.w. kerosene	4.50 – 4.75	4.625– 4.75	4.875– 5.00
41-43 w.w. kerosene	4.75	4.75 – 5.00	5.00

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosene	5.375– 5.50	5.50 – 5.75	5.625– 5.75
42-44 w.w. kerosene	5.625	5.75 – 6.00	6.00

ARKANSAS (Ark., N. La. and Miss. destination)

42-44 kerosene	5.625	5.75 – 6.00	6.00

CALIFORNIA

38-40 w.w. kerosene	5.00 – 6.00	4.75 – 6.00	4.75 – 5.50

NEUTRAL OIL

PENNSYLVANIA

Vis.		(Viscosity at 70°F.)	
200 No. 3 Assoc. Filt	24.50 –27.00	25.00 –27.00	25.00 –27.00
180 No. 3 Assoc. Filt	19.50 –21.50	21.50 –23.00	21.50 –23.00
150 No. 3 Assoc. Filt	16.00 –18.00	16.00 –18.00	16.00 –18.00
		(Non Viscous)	
34 Grav. 330-340 Flash	7.25 – 7.50	7.50 – 7.75	7.50 – 7.75

****OKLAHOMA**

Vis.	Color	(Viscosity at 100°F.)		
100	No. 2	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
150	No. 3	7.50 – 8.25	7.50 – 8.25	7.50 – 8.25
150	No. 4	6.75 – 7.50	6.75 – 7.50	6.75 – 7.50
180	No. 3	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
180	No. 4	8.75 – 9.25	8.75 – 9.25	8.75 – 9.25
180	No. 5	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00
200	No. 3	9.50 –11.00	9.50 –11.00	9.50 –11.00
200	No. 4	9.00 –10.00	9.00 –10.00	9.00 –10.25
200	No. 5	8.75 – 9.50	8.75 – 9.50	8.75 – 9.50
220	No. 3	12.50 –13.50	12.50 –13.50	12.50 –13.50
220	No. 4	12.00 –12.50	12.00 –12.50	12.00 –12.50
220	No. 5	11.00 –12.00	11.00 –12.00	11.00 –12.00
240	No. 3	13.00 –13.50	13.00 –13.50	13.00 –13.50
240	No. 4	12.00 –13.00	12.00 –13.00	12.00 –13.00
240	No. 5	11.00 –13.00	11.00 –13.00	11.00 –13.00
280	No. 3	14.00 –16.00	14.00 –16.00	14.00 –16.00
280	No. 4	13.00 –15.00	13.00 –15.00	13.00 –15.00
280	No. 5	12.00 –14.00	12.00 –14.00	12.00 –14.00

****Represents both sales and quotations.**

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, F. O. B. refinery except where $ is shown

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

GULF COASTAL

Vis.	Color	Prices Sept. 30	Prices Sept. 23	Prices Sept. 16
		(Viscosity at 100°F., pour test 0)		
100	No. 2 Pale	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
200	No. 3 Pale	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
300	No. 3 Pale	10.00 –10.50	10.00 –10.50	10.00 –10.50
500	No. 3½ Pale	11.50 –12.00	11.50 –12.00	11.50 –12.00
750	No. 4 Pale	12.50 –13.00	12.50 –13.00	12.50 –13.00
200	No. 5½ Red Oil	8.00 – 8.50	8.00 – 8.50	8.00 – 8.50
300	No. 5½ Red Oil	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
500	No. 6 Red Oil	10.00 –10.50	10.00 –10.50	10.00 –10.50
750	No. 6 Red Oil	11.50 –12.00	11.50 –12.00	11.50 –12.00

CALIFORNIA

Vis.	Color		(Viscosity at 100°F.)	
100	No. 3	9.50 –10.00	9.50 –10.00	9.50 –10.00
200	No. 3	11.50	11.50	11.50
300	No. 3	13.00	13.00	13.00
450	No. 3	15.50	15.50	15.50
550	No. 3	16.50	16.50	16.50
600	No. 3	17.00	17.00	17.00
200	No. 5	11.00	11.00	11.00
300	No. 5	12.00	12.00	12.00
400	No. 5	14.00	14.00	14.00
500	No. 5	15.00	15.00	15.00
600	No. 5	16.00	16.00	16.00
700	No. 7	18.00	18.00	18.00

CYLINDER STOCKS

**OKLAHOMA

190-200 Vis. D at 210° Brt. St.	40.00 –42.00	40.00 –42.00	37.00 –41.00
150-160 Vis. D at 210° Brt. St.	37.00 –38.00	37.00 –38.00	36.00 –38.00
150-160 Vis. E 210° Brt. St.	33.00 –35.00	33.00 –35.00	33.00 –34.00
600 St. Ref. Olive Green	10.00 –14.00	10.00 –14.00	12.00 –16.00
600 St. Ref. Dark Green	10.00 –13.00	10.00 –14.00	11.00 –15.00
Black Oil	5.00	5.00	5.00

PENNSYLVANIA (A. S. T. M. Tests)

600 Steam Refined, filterable	26.00 –27.00	23.00 –24.00	23.50 –24.00
650 Steam Refined	28.50 –30.00	28.50 –29.00	28.50 –29.00
600 Flash	30.00 –33.00	31.00 –32.00	31.00 –32.00
625 Flash	35.00 –37.00	35.00 –37.00	35.00 –37.00
600 Warren E	32.50	32.50 –33.00	32.50 –33.00
600 Oil City E	31.00 –31.50	31.50 –32.00	31.50 –32.50
600 D Filtered	36.50 –37.00	36.50 –37.00	37.00
Cold Test Stock, 40-50p. p., 140-150 vis. at 210° 540-550 flash, No. 8 color	†52.50 –53.50	†52.50 –53.50	†52.50 –53.00
40-50 p.p., 140-150 vis. at 210°, 540-550 flash, No. 6-6½ color diluted	†50.00 –51.00	†50.00 –52.00	†50.00 –52.00

WAX

PENNSYLVANIA (Per pound, New York)

122-124 white crude scale, a.m.p.	2.875– 3.125	3.00 – 3.25	3.00
124-126 white crude scale, a.m.p.	3.00 – 3.25	3.00 – 3.25	3.00 – 3.125

OKLAHOMA

**124-126 White Crude Scale, a. m. p.	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00

CALIFORNIA

White crude scale, per pound, ton lots, a.m.p.	6.00 – 6.50	.....	6.00 – 6.50

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	4.50 – 4.75	4.375– 4.75	4.25 – 4.625
30-34 fuel oil	4.125– 4.25	4.25	4.125– 4.25
28-32 fuel oil	4.125– 4.25	4.25	4.125– 4.25

CHICAGO RESALE (F. o. b. Group 3, altho goods may originate elsewhere)

	Prices Sept. 30	Prices Sept. 23	Prices Sept. 16
38-40 straw distillate	4.00	3.875– 4.00	3.625– 3.875
32-36 ordinary dark gas oil	2.75 – 2.875	2.625– 2.75	2.625– 2.75
32-36 dark zero gas oil	2.875– 3.00	2.75 – 3.00	2.75 – 2.875
32-36 straw zero gas oil	†3.125– 3.25	†3.00 – 3.25	†3.00
28-30 zero fuel oil	$1.05 –$1.10	$1.025–$1.075	$1.00 –$1.025
28-30 fuel oil	$1.00 –$1.025	$1.00	$0.95 –$1.00
24-26 fuel oil	$0.80 –$0.825	$0.75 –$0.80	$0.75 –$0.775
18-22 fuel oil, low sulfur	$0.625–$0.65	$0.625–$0.65	$0.625–$0.65
18-22 fuel oil, high sulfur	$0.625–$0.65	$0.60 –$0.625	$0.575–$0.625

OKLAHOMA

38-40 straw distillate	4.00	4.00	3.75 – 4.00
36-38 straw distillate	3.75 – 3.875	3.75	3.50 – 3.625
32-36 straw gas oil	2.875– 3.00	2.875– 3.00	2.75 – 3.00
32-36 dark gas oil	2.875– 3.00	2.75 – 3.00	2.625– 2.75
32-36 straw zero gas oil	3.00 – 3.25	3.00 – 3.125	2.875– 3.00
32-36 dark zero gas oil	3.00 – 3.125	3.00	.....
28-30 zero fuel oil	$1.05 – 1.10	$1.05 – 1.10	$1.00 –$1.05
28-30 fuel oil (in bbls.)	$1.025– 1.05	$1.00	$0.95 – 0.975
26-28 fuel oil (in bbls.)	$0.85 – 0.90	$0.85 – 0.875	$0.825– 0.85
24-26 fuel oil (in bbls.)	$0.80 – 0.875	$0.80 – 0.85	$0.775– 0.825
22-26 fuel oil (in bbls.)	$0.65 – 0.70	$0.65 – 0.70	$0.625– 0.65
18-22 fuel oil (in bbls.)	$0.65	$0.60 – 0.65	$0.60 – 0.625
‡16-20 fuel oil (in bbls.)	$0.55 – 0.60	$0.55 – 0.575	$0.50 – 0.55
14-16 fuel oil (in bbls.)	$0.525– 0.60	$0.525– 0.55	$0.50 – 0.525

‡Gravity changed from 16-18 to 16-20, Aug. 19.

KANSAS (F. O. B. refinery Kansas destination)

38-40 straw distillate	4.00 – 4.125	4.00 – 4.25	4.00
36-38 straw distillate	4.00	3.25	3.75
32-36 gas oil	3.00 – 3.25	3.00 – 3.25	3.00
18-22 fuel oil	$0.675– 0.70	$0.65 – 0.70	$0.65
10-14 fuel oil	$0.625– 0.65	$0.60	$0.525– 0.575

NORTH TEXAS

38-40 straw distillate	3.875– 4.00	4.00	3.625– 3.75
32-36 gas oil, cracked	2.625	2.625	2.50
32-36 St. reduced gas oil	2.75	2.625– 2.75	2.50 – 2.75
24-26 fuel oil (in bbls.)	$0.65 – 0.70	$0.65 – 0.70	$0.65 – 0.675
20-24 fuel oil	$0.625– 0.675	$0.625– 0.675	$0.625– 0.65
18-22 fuel oil	$0.575– 0.60	$0.575– 0.60	$0.525– 0.55

**WEST TEXAS (F.o.b. West Texas refinery, for unrestricted shipment)

34-38 gas oil	3.00 – 3.25	2.75	2.50
30-32 gas oil	2.75 – 3.25	2.50 – 2.75	2.375– 2.50
18-22 fuel oil	$0.55 – 0.60	$0.55 – 0.60	$0.50 – 0.55

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil, dark	3.50	3.25	3.00 – 3.25
32-36 gas oil, straw	3.50	3.25	3.125– 3.25
14-16 fuel oil (in bbls.)	$0.70 – 0.80	$0.70 – 0.80	$0.70 – 0.80

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil, straw	3.50	3.25	3.125– 3.25
32-36 dark gas oil	3.50	3.25	3.00 – 3.25
28-30 gas oil	3.00 – 3.25	2.875– 3.00	2.75 – 3.00
14-16 fuel oil	$0.70 – 0.80	$0.70 – 0.80	$0.70 – 0.80

CALIFORNIA (F. o. b. San Joaquin Valley. At San Francisco, 4c per bbl. more)

14-18 fuel oil (per bbl.)	$0.45 –$0.60	$0.45 –$0.60	$0.45 –$0.55
14-18 Bunker oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
30-34 gas oil (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.95
27 Plus Diesel oil (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.95

PETROLATUMS

PENNSYLVANIA (In barrels, carload lots, f. o. b. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

Snow White	8.50 – 8.75	8.50 – 8.75	8.50
Lily White	7.75	7.75	7.50 – 7.75
Cream White	6.75	6.75	6.50 – 6.75
Light Amber	3.75	3.75	3.50 – 3.75
Amber	3.50	3.50	3.25 – 3.50
Red	3.25	3.25	3.00 – 3.25

PETROLEUM COKE

**OKLAHOMA

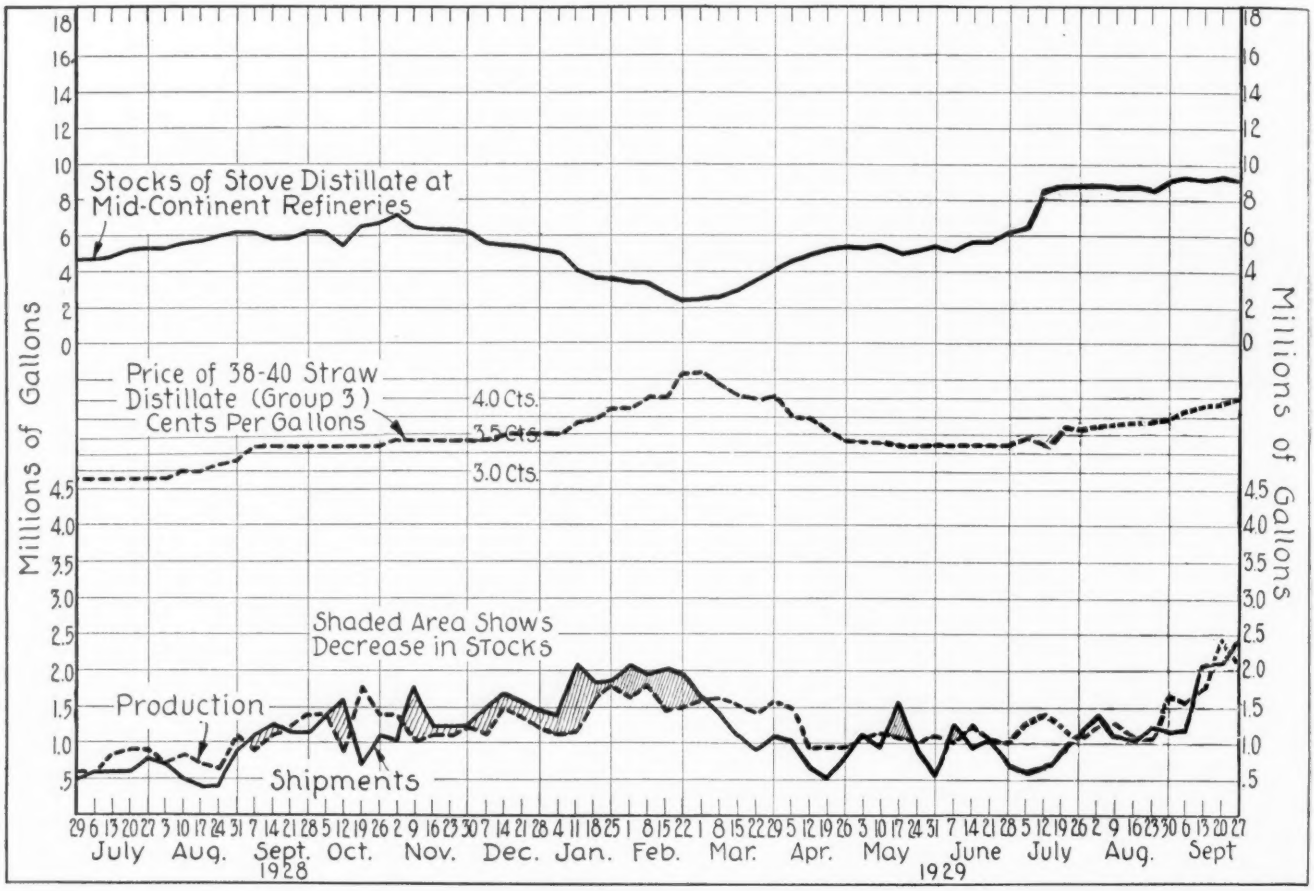
(Per ton in car lots)

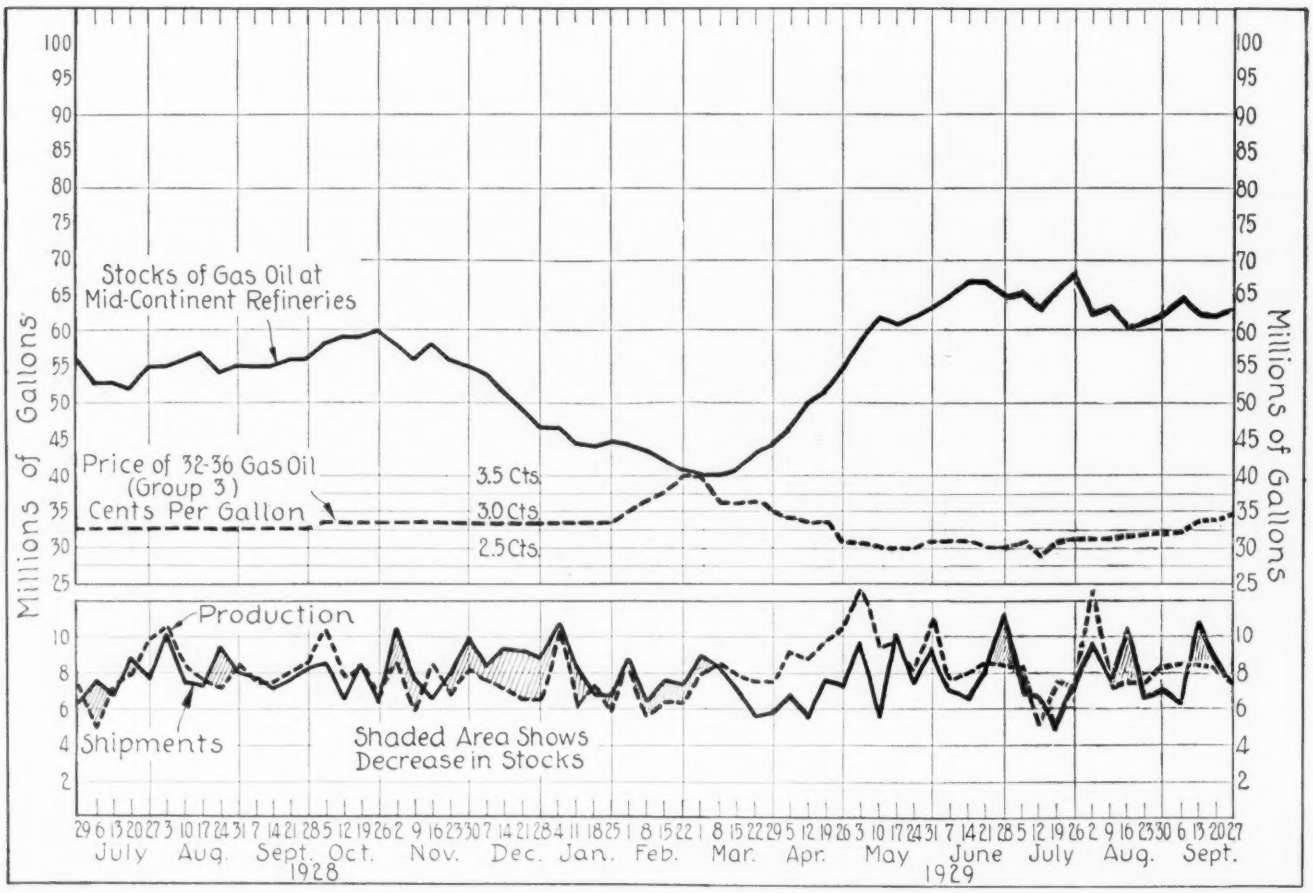
Lump	$4.50 –$5.00	$4.50 – 5.00	$4.50 –$5.00
Still run	$3.00	$3.00	$3.00
Breeze	$2.00	$2.00	$2.00

†Prices Nominal ††Only One Refiner Quoting *Quotations only **Represents both sales and quotations

Barometer of Mid-Continent Refinery Market—Week Ending September 27

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Stocks of Stove Distillate at Mid-Continent Refineries
Price of 38-40 Straw Distillate (Group 3) Cents Per Gallons
4.0 Cts.
3.5 Cts.
3.0 Cts.
Shaded Area Shows Decrease in Stocks
Production
Shipments
Millions of Gallons
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept
1928
1929


Stocks of Gas Oil at Mid-Continent Refineries
Price of 32-36 Gas Oil (Group 3) Cents Per Gallon
3.5 Cts.
3.0 Cts.
2.5 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Millions of Gallons
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug. Sept.
1928
1929

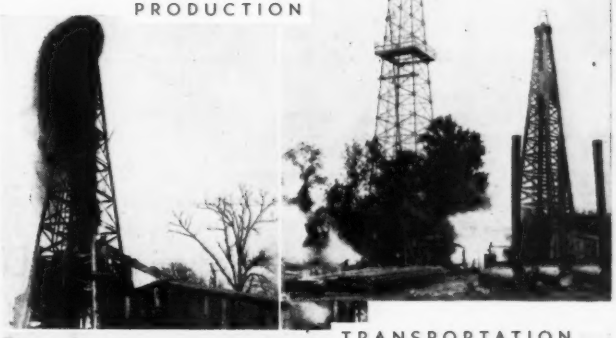
A Welcome to the INTERNATIONAL PETROLEUM EXPOSITION

Some Skelly Oil Company Officials—left to right F. A. Pielsticker, H. M. Stalcup, Clarence R. Bitting, W. G. Skelly, Carle C. Conway, C. C. Herndon, F. T. Hopp, R. T. Lyons

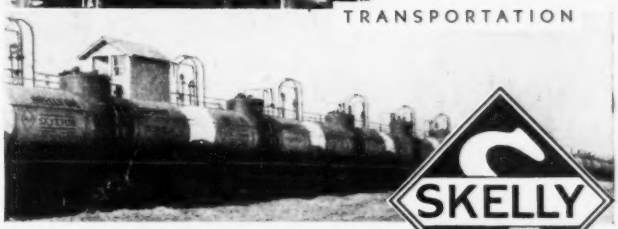
On the Occasion of the Tenth Anniversary of Skelly Oil Co.

TEN YEARS ago a new oil company was founded here. Its organizers had two definite plans. One, to build an integrated company, strong in every branch of the petroleum business. The other, to adhere to a quality ideal even though its products must sell at a premium. . . . Today, both aims have been realized. The company's production, transportation, natural gasoline, refining and marketing divisions are strongly organized, and being further developed according to definite plan. The company's major products enjoy the confidence of hundreds of thousands of customers through approximately 6,000 retail outlets. . . . This Tulsa institution with interests throughout much of the nation welcomes to its home city visitors representing the industry internationally.

PRODUCTION



TRANSPORTATION



SKELLY

REFINING

THE NEW TAGOLENE MOTOR OIL

SKELLY AROMAX GASOLINE

SKELLY Refractionated GASOLINE

SKELLY Aviation GASOLINE

SKELGAS The COMPRESSED NATURAL GAS

SKELLY NATURAL GASOLINE

MARKETING

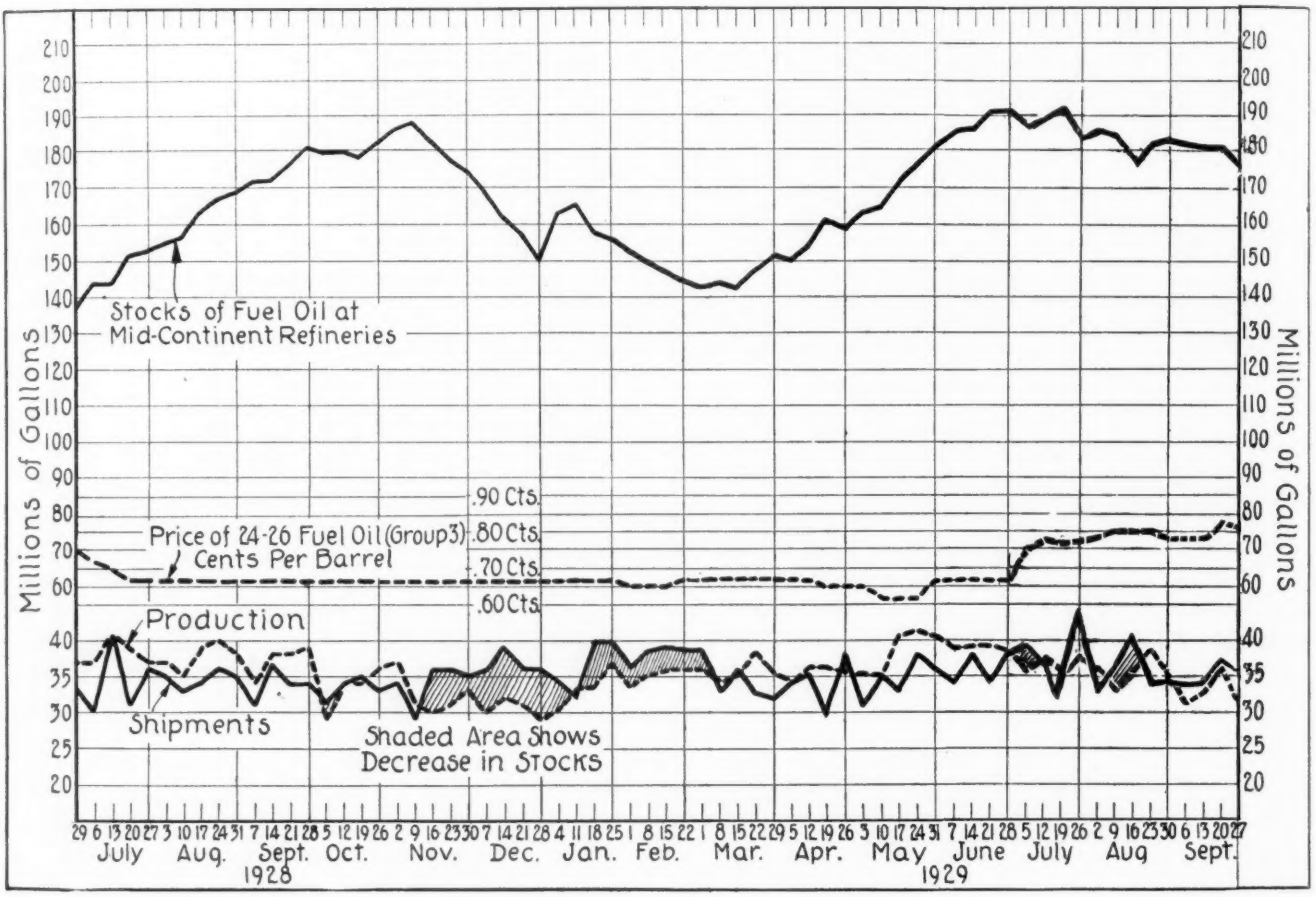
SKELLY OIL COMPANY

REFINERY: EL DORADO, KANS TULSA KANSAS CITY

OFFICES IN PRINCIPAL CITIES

Barometer of Mid-Continent Refinery Market—Week Ending September 27

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Stocks of Fuel Oil at Mid-Continent Refineries
Price of 24-26 Fuel Oil (Group 3) Cents Per Barrel
.90 Cts.
.80 Cts.
.70 Cts.
.60 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May June July Aug Sept.
1928
1929

California Refinery Market

Intercoastal Trading Continues Quiet

LOS ANGELES, Sept. 28

THE California export gasoline market remained generally unchanged throughout the past week. Although there were rumors that U. S. Motor gasoline for shipment to the Atlantic seaboard could have been purchased at as low as 6 cents per gallon, latest reports showed that no sales had been made at this price, or in fact at any other.

Quotations were reported by one dealer to have been as low as 6.50 cents per gallon although others said they would not sell at this figure. The range extended up to 7.50 cents on low end point goods.

Tanker rates did not tend to help matters any. Rates for clean bottoms hovered around $0.85 to $0.87 per barrel. The last boat was fixed at the latter figure. California shippers do not anticipate brisk trade as long as gasoline sells on the eastern seaboard for as low as 8.50 cents per gallon.

A buyer was reported in the market the past week for Bunker B fuel oil, offering $0.585 per barrel. Bunker C in tank car lots moved at $0.45 to $0.60 per barrel. Increased inquiries were noted in fuel oil markets as consumers prepared to lay in their winter supplies.

One dealer stated that fuel oil was available as low as $0.425 per barrel and that a large quantity had moved at around this figure. A three year contract was reported to have been made at a flat rate of $0.475.

Gasoline in tank car lots for shipment out of the state was active; quotations ranged from 7.25 to 8.50 cents per gallon. Several spot sales were reported to have been made to jobbers in Utah, Arizona and Montana.

Gasoline for shipment within the state continued hard to obtain since most of the surplus has been purchased by large interests. There were rumors, however, of a large amount of off-grade gasoline being offered.

Natural gasoline quotations ranged from 8 to 9 cents per gallon; some of this commodity was reported sold at 7.50 cents. The low price, it was reported, was a result of an arrangement between buyers and operators of absorption plants that have sprung into existence as a result of the expected enforcement of California's gas conservation law.

Kerosene was active at from 5 to 6 cents a gallon; this represents an advance of 0.5 cent over last week's quotations. Other refinery products were generally unchanged.

There was some anxiety among retailers over the increase in independent stations posting cut prices. Major companies continue to post 19.5 cents per gallon, or 7 gallons for $1.37. A large number of cut price stations offer 7 gallons for $1.10 and 6 gallons for $1.00; some offer 7 gallons for $1.00.

If You Send Us A Trial Order Today
We Make This Prediction—
That On Your Next Order You Will Specify
SUPERIOR QUALITY PRODUCTS

A TRIAL TODAY
A Customer Tomorrow

The Trial Order tells the consumer the truth at all times—if it discloses products of quality and if the delivery is made on time, with each tank car, drum, or container in good condition—in short, if it ranks 100 per cent, in all ways then you will be fully satisfied.

Superior Oil Works
Warren, Pa.

Solicits The Trial Order Test.

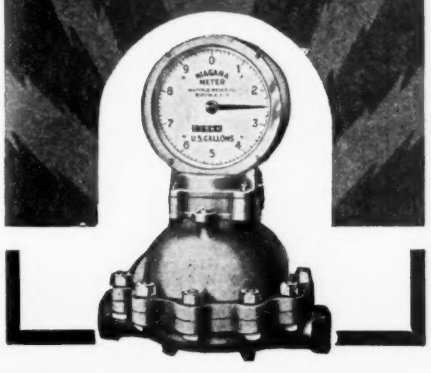
We Specialize in
Penna Straight Run Gasoline
Water White Kerosene
36/40° Light Fuel Oil
300 Mineral Seal
Cylinder Stocks and Neutrals

DEPENDABILITY

The Niagara meter never forgets—never jots down wrong totals—never delivers uncounted gallons of gasoline or oil that cut into profits. If the Niagara registers 50, fifty gallons have gone through—if 50,000, fifty thousand gallons have been delivered, and recorded so they'll be paid for. It is accurate.

The Niagara installed today is installed for years from now—its dependability is permanent. It is "rugged" structurally and simple mechanically. Send today for the new catalog of these familiar meters.

BUFFALO METER COMPANY
2889 Main Street
Buffalo, N. Y.



Pennsylvania Market

Cylinder Stocks Rise Sharply

CLEVELAND, Sept. 30.—Steam refined cylinder stocks forged ahead in the western Pennsylvania market the last week of September. The advance was rather spectacular, prices rising fully 3 cents a gallon and showing no signs of reacting.

The trend of prices for other oils was mixed, with motor fuels easing off slightly and burning oils again displaying advancing tendencies. Neutral oils continued relatively quiet. Bright stock was scarce and quotations remained largely nominal. Wax showed further improvement.

The contract purchases of steam refined stocks by bright stock manufacturers for October were reported as exceptionally large, leaving only small quantities of these oils for the open market. Most bright stock manufacturers completed covering on their October requirements by the early part of last week. The majority of them reported paying 23 to 24 cents.

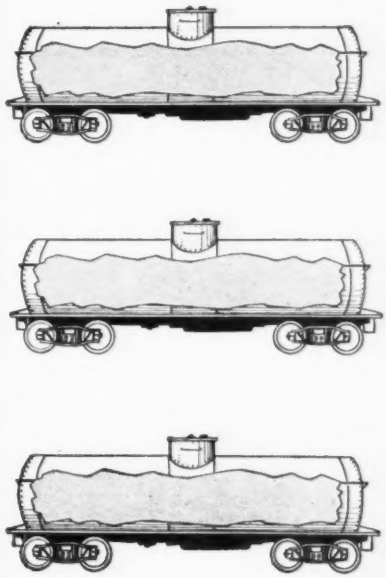
Toward the end of the week it became increasingly hard to find open market goods. Most refiners had advanced their prices for 600 steam refined to a minimum of 26 cents. Several spot orders were reported placed at this figure. On Monday, Sept. 30, at least three companies continued to quote this price but reports from other sources indicated that the spot inquiry was still sufficiently good that it wouldn't be long before 26-cent material would be eliminated from the market.

Several refiners said they had been offered 26 cents firm for this oil but their entire output for October had been committed and they were unable to accept additional business. Quotations at the beginning of this week were running as high as 28 cents.

Filtered stock did not share in the advance of steam refined stock. In fact, these oils were more freely offered last week than they have been for some time past. This, however, did not result in any price recessions. The 600 Warren E grade continued to be quoted at a minimum of 32.50 cents with Oil City E at 31 to 31.50 cents and D filtered at 36.50 to 37 cents.

Fuel oils advanced approximately 0.125-cent last week. In addition to the normal fall pick-up in demand scarcity of fuel oils in the Mid-Continent had turned numerous middle western buyers to the Pennsylvania market, it was reported in some quarters. Fall buying was better, some sellers said, than it had been for many seasons past.

The 36-40 straw color fuel oil was quoted at a minimum of 4.50 cents by the end of last week; a number of companies raised their prices to 4.75 cents.



EVERY CARLOAD COLORED ALIKE

Uniformity is easy with

DYKEM GASOLINE COLORS

Several Shades of
RED BLUE
GREEN PURPLE
ORANGE

Samples of shades you prefer and prices gladly submitted.

DYESTUFFS & CHEMICALS, INCORPORATED.
11th and Monroe Sts.,
ST. LOUIS, MO.

New York Domestic Market

California Gasoline Lower in East

Staff Special
NEW YORK, Sept. 28

EASTERN markets were lacking in any particularly outstanding feature the past week. Demand for all commodities was reported a shade better. The opening of the burning oil season caused a slight flurry in prices for these oils, but generally speaking quotations were unchanged.

California gasoline probably supplied the greatest interest in the market. Opinions of eastern distributors gave the market a fair-to-good standing. Prices were reduced at some points but this action was more to meet competition from other points rather than an effort to lower the market to get business.

California U. S. Motor has been quoted at 9 cents in the Philadelphia district for several weeks past, but not until this week did some sellers lower their prices at Baltimore and New York to meet this competition.

The demand was good at all points both for spot and contract goods. One seller at Philadelphia reported his business during the month of September would probably eclipse that of August, normally a better month.

California gasoline stocks on the east coast were reported in better shape than a week ago, when several sellers said they were short. However, one seller at New York was only taking care of his contract customers and another was out of the market entirely. The latter company has not been doing much business in California goods for several weeks.

Receipts of California gasoline at Atlantic coast ports during the week ended Sept. 21 showed that sellers had 705,000 barrels more with which to start the past week.

Reports from the west coast indicate that quotations ranged from 6.50 to 7 cents for U. S. Motor for intercoastal shipment. One eastern distributor said his California representative informed him 7 cents was the general quotation although he believed 6.75 could be done with a firm offer. Another distributor in the east said he could do 6.50 cents. He was quoted 8.25 cents c.i.f. the week prior, which, on the basis of current tanker rates charged would net back about 6.25 cents f.o.b. California.

Regular U. S. Motor gasoline was unchanged at all points. At New York one supplier who a week ago had sold some goods at 8.50 cents stated that he would not shade 8.75 cents. Another who has been quoting 8.50 cents said he would still accept business at this figure.

A few jobbers requested quotations for October gasoline the past week but most refiners were unwilling to quote for this period. One Philadelphia refiner reported he would accept business over October at 9 cents. Two or three others were quoting higher prices for spot shipment.

Kerosene was in good demand at all points at 7.75 cents per gallon. Suppliers expect to see an increase in prices as the result of the better demand.

The same was true of gas oil and furnace oil. Prices were unchanged at 4.75 cents, and 6 to 6.50 cents, respectively. Several suppliers at New York have reported making contracts over the entire consuming season at those figures. Others were making contracts on the basis of market-date-of-shipment.

Gulf Coast Market

Two Inquiries Break Lull in Market

Staff Special
NEW YORK, Sept. 28

THE lull that has prevailed in Gulf markets for several weeks was broken this week when two foreign buyers entered the market for cargoes of gasoline and gas oil. While these inquiries failed to result in business, they served to create a little interest in the market.

Early in the week a French buyer entered the market for approximately 75,000 barrels of 64-66, 375 end point gasoline. The inquiry did not become known to most suppliers until about the middle of the week. Later the buyer, without divulging his reasons, was said to have postponed.

Still later an authentic source reported that broker was working on the deal and had quoted a price 0.25 cent below that posted for 64-66, 375 end point gasoline by the Export Petroleum Association. The association posts 10 cents for this commodity, f.o.b. the Gulf. The trade believed the goods could be purchased in the Mid-Continent at a low enough figure to net the broker a profit in spite of the fact that Mid-Continent stocks were reported in good shape.

Another inquiry, still open at the close of the week, called for approximately 70,000 barrels of 26-30 low sulfur gas oil. This inquiry came from an English buyer who stipulated early October shipment. It was reported the buyer was quoted 4 cents.

Prices for gas oil, both for domestic and export shipment, were slightly higher at the close of the week. Gulf refiners' stocks were in good shape, it was reported, because of the good domestic movement recently. Most of this material has been used for cracking purposes. Quotations were advanced 0.125 cent on the 30 plus grade, light color, for export shipment, and on 26-32 light color for domestic shipment. Lower gravity goods were unchanged at 4 cents.

A New York broker reported the sale of approximately 75,000 barrels of California gasoline for early October shipment to England. The gasoline was 58-62 gravity, 390 end point, and sold at 8.50 cents. This is the Export Petroleum Association's price f.o.b. California ports.

Another New York broker working for a foreign account was quoted 7.50 to 8 cents f.o.b. tanker at Houston for 85,000 barrels of 300 viscosity, No. 5 to 6 color red oil. The broker did not say whether or not these quotations had been accepted by the buyer.

The bunker oil market was steady and prices were generally unchanged. One buyer reported that $0.65 could be done for Grade C in cargoes. Some suppliers were a bit dubious about buyers being able to do less than $0.70 a barrel although a broker said he believed $0.68 could be done on firm offer. Another New York broker reported that two cargoes of Grade C had been offered him at $0.55 a barrel, f.o.b. California.

The tanker market showed no appreciable change although there was a slight stiffening in inter-coastal rates for clean bottoms.

Hayden On Extended Business Trip

WARREN, Pa., Sept. 30.—H. S. Hayden, general sales manager of the Pennsylvania Oil Products Refining Co. left yesterday for a business trip through the northwest and on to the Pacific coast. The purpose of the trip, according to Mr. Hayden, is to call on dealers handling the company's line of Eldred oils. The company's refinery is at Eldred, Pa.

Wax Market

Export Inquiry Improves

NEW YORK, Sept. 28.—Prices for all grades of wax were unchanged the past week. There was very little activity during the early part of the week but toward the latter part United Kingdom buyers showed some interest.

Several purchases of crude scale were made but in each case they were for small lots. They were for prompt shipment and were made at current market prices.

There were various opinions expressed as to the condition of the market, some sellers believing that prices would be better in the next few weeks while others felt that there would be very little, if any, advance in prices.

Several of those maintaining that better prices would be seen shortly based their opinions on the fact that United Kingdom buyers—large purchasers of white crude scale—were bidding higher than they had for some time past. Some bids were received that indicated buyers would pay 3.42 to 3.47 cents, c.i.f. for white crude scale. Those bids would figure out a fraction over 3 cents, f.o.b. New York, the present low of the spot market. Bids for futures were lower than refiners were willing to accept.

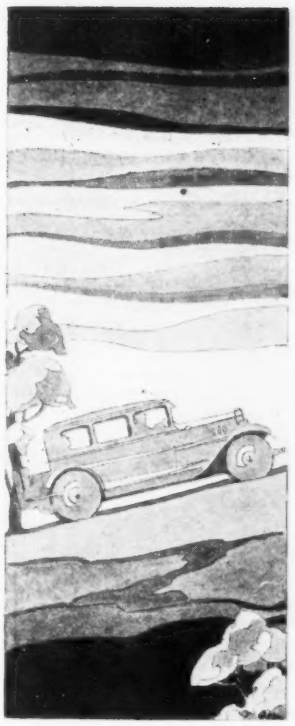
Some sellers felt that stocks, which at present are large, will have to be reduced before there will be any material advance in the market.

A large manufacturer of scale with a refinery in the Mid-Continent reported he was contemplating marketing a lower melting point grade than is generally made. This product—if manufactured—would be white and would melt at about 120 degrees.

In seeking an outlet for this grade he said he would be able to sell it for about 2.50 cents, f.o.b. refinery. He said that two or three brokers had offered to buy over the next six months at those prices. He believed they were speculative offers and that the brokers had contacts abroad to which the goods could be turned.

Fully refined waxes were in a different position than scale. While prices have remained steady there has been no great demand.

A seller who a week ago stated he would sell 2,000 tons of 125-127 A.m.p. Polish wax, at 3.55 cents delivered New York, reported he had been unable to place any business. United States sellers were asking from 3 to 3.25 cents for this grade. It was reported that the goods had a stronger odor than domestic waxes and were slightly off color.



Guaranteed 100% PURE PENNSYLVANIA OIL
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Try MOTUL *in your own car*
—then you will know why *you* should sell MOTUL

PUT Motul in the crank case of your own car. Then you will know by your own *personal* experience what a supremely fine motor oil Motul really is. When you have gained this *first-hand* knowledge of Motul quality, you will see the opportunity it offers in building *volume sales* with a *quality product*. And your personal *enthusiasm for the product* will find expression throughout your sales organization.

Protect your future source of 100% Pure Pennsylvania Oil—Swan-Finch refined at Warren, Pennsylvania—and, at the same time, secure a long-time franchise to *exclusive* Motul territory. This is *your* opportunity. Phone, wire or write.

SWAN-FINCH REFINING CO.
205 E. 42nd Street, New York

SWAN FINCH
MOTUL
100% Pennsylvania Oil

Complete Seaboard Market

(Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of quotations.)

	Sept. 30	Sept. 23	Sept. 16
U. S. MOTOR GASOLINE			
New York harbor	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
Portland district	**10.25–10.75	**10.25–10.75	**10.25–10.75
Boston district	** 9.75–10.25	** 9.75–10.25	** 9.75–10.25
Providence district	** 9.75–10.25	** 9.75–10.25	** 9.75–10.25
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00	9.00	9.00
Norfolk district	9.00	9.00	9.00
Charleston district	9.00	9.00	9.00
Savannah district	9.00	9.00	9.00
Jacksonville district	9.00	9.00	9.00
CALIFORNIA, U. S. MOTOR GASOLINE			
New York harbor	9.00 – 9.25	9.25	9.25
Philadelphia district	9.00	9.00	9.00
Baltimore district	9.00 – 9.25	9.25	9.25
WATER WHITE KEROSENE			
New York harbor	7.75	7.75	7.75
Philadelphia district	7.75	7.50 – 7.75	7.50 – 7.75
Baltimore district	7.75	7.75	7.75
GAS OIL: 28-34 Gravity			
New York harbor	4.75	4.75	4.75
Boston district	4.75	4.75	4.75
FURNACE OIL: 36-40 Gravity			
New York harbor	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
Boston district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
GRADE C BUNKER OIL†			
New York harbor	$1.05	$1.05	$1.05
Boston district	$1.05	$1.05	$1.05
DIESEL OIL			
New York harbor	$2.00 –$2.10	$2.00 –$2.10	$2.00 –$2.10
MEDICINAL OILS, RUSSIAN			
.885-890 s.g. 320-330 vis.	$0.82 – 0.97	$0.82 – 0.97	$0.82 – 0.97
.870-875 s.g. 145-155 vis.	$0.74 – 0.89	$0.74 – 0.89	$0.74 – 0.89

Note: Above gasoline prices do not include inspection tax levied in some states
*Minimum delivered. **Delivered prices. †Lighterage 5c per bbl. additional
††Nominal.

New York Export Market

(Lubricating oils are per gal. in bbls.)

	Sept. 30	Sept. 23	Sept. 16
CYLINDER OILS (Pennsylvania Products)			
Bright stock, dark	57.00 –59.00	56.00 –59.00	57.00 –59.00
600 D filtered	41.00 –44.00	41.00 –44.00	41.00 –44.00
600 Warren E filtered	40.00 –41.00	39.00 –41.00	40.00 –41.00
600 s.r. unfiltered	28.00 –31.00	27.00 –30.00	27.00 –30.00
650 s.r. unfiltered	35.00 –36.50	35.00 –36.50	34.00 –36.00
600 flash, s.r.	37.00 –39.00	35.00 –38.00	35.00 –38.00
630 flash, s.r.	42.00 –44.00	40.00 –43.00	40.00 –43.00
RED ENGINE OILS (Vis. 100°)			
300 vis. No. 6½ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
250 vis. No. 6 color	18.00 –20.00	18.00 –20.00	18.00 –20.00
200 vis. No. 6 color	16.00 –17.00	16.00 –17.00	16.00 –17.00
PALE ENGINE OILS (Vis. 100°)			
230 vis. No. 3¾ color	20.00 –21.00	20.00 –21.00	20.00 –21.00
180 vis. No. 3¼ color	17.00	17.00	17.00
100 vis. No. 2¼ color	16.00	16.00	16.00
MOTOR OILS (Vis 100°)			
600 vis. No. 7 color	33.00 –34.00	33.00 –34.00	33.00 –34.00
500 vis. No. 6½ color	31.00	31.00	31.00
400 vis. No. 7¼ color	30.00	30.00	30.00
300 vis. No. 6 color	23.00 –25.00	23.00 –25.00	23.00 –25.00
200 vis. No. 6 color	20.00 –22.00	20.00 –22.00	20.00 –22.00
MEDICINAL OILS			
.875-880 s.g.	$0.76 – 0.91	$0.76 – 0.91	$0.76 – 0.91
.860-.865 s.g.	$0.58 – 0.73	$0.58 – 0.73	$0.58 – 0.73
WAXES (In cents per pound, f.a.s. carload lots)			
WHITE CRUDE SCALE (In barrels)			
122-124 A.m.p.	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
124-126 A.m.p.	3.00 – 3.125	3.00 – 3.125	3.00 – 3.125
FULLY REFINED (In burlap bags)			
123-125 A.m.p. Phila.	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
125-127 A.m.p.	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
128-130 A.m.p.	4.25 – 4.50	4.25 – 4.50	4.25 – 4.50
130-132 A.m.p.	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
133-135 A.m.p.	6.00	6.00	6.00
135-137 A.m.p.	6.25	6.25	6.25
YELLOW CRUDE SCALE			
124-126 A.m.p.	2.875– 3.00	2.875– 3.00	2.875– 3.00

Gulf Export Market

(Prices are f. o. b. Gulf oil terminals in Texas and Louisiana, shipments of 20,000 bbls. or more unless otherwise noted and for export shipment only).

GASOLINE	Sept. 30	Sept. 23	Sept. 16
U. S. Motor	8.50	8.50	8.50
60-62, 400 e.p.	9.50	9.50	9.50
61-63, 390 e.p.	9.75	9.75	9.75
64-66, 375 e.p.	10.00	10.00	10.00
U. S. Motor, cases (cargoes)	$1.85	$1.85	$1.85
64-66, cases (cargoes)	$2.00	$2.00	$2.00
KEROSENE			
44 water white	8.00	8.00	8.00
41-43 prime white	7.00	7.00	7.00
Water white, cases (cargoes)	$1.80	$1.80	$1.80
Prime white, cases (cargoes)	$1.70	$1.70	$1.70
DOMESTIC GAS & BUNKER OILS			
*26-30 translucent gas oil	4.00	4.00	4.00
*30 plus translucent gas oil	4.00 – 4.25	4.00 – 4.125	4.00 – 4.125
Grade C bunker oil	$0.95	$0.90 –$0.95	$0.90 –$0.95
Grade C bunker oil, cargoes	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75
*Less than ½ of 1% sulphur.			
MEXICAN CRUDE AND BUNKER OILS (F. O. B. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65
Grade C bunker oil for bunkering purposes, taxes paid	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
SOUTH TEXAS LUBRICATING OILS, (Viscosity at 100°F.) (cold test 0) (Tanker, f. o. b. Houston)			
100 vis. No. 2 unfiltered pale	6.25 – 6.50	6.00 – 6.50	6.00 – 6.50
200 vis. No. 3 unfiltered pale	8.25 – 9.00	8.00 – 9.00	8.00 – 9.00
300 vis. No. 3 unfiltered pale	9.75 –10.00	9.50 –10.00	9.50 –10.00
500 vis. No. 3½ unfiltered pale	11.25 –11.50	11.00 –11.50	11.00 –11.50
750 vis. No. 4 unfiltered pale	12.75 –13.00	12.50 –13.00	12.50 –13.00
1200 vis. No. 5 unfiltered pale	16.25 –16.50	16.00 –16.50	16.00 –16.50
200 vis. No. 5-6 red oil	8.00	7.75 – 8.00	7.75 – 8.00
300 vis. No. 5-6 Red oil	8.50	8.25 – 8.50	8.25 – 8.50
500 vis. No. 5-6 red oil	9.25 –10.00	9.00 –10.00	9.00 –10.00
750 vis. No. 5-6 red oil	12.00	11.75 –12.00	11.75 –12.00
1200 vis. No. 5-6 red oil	16.25 –16.50	16.00 –16.50	16.00 –16.50

Gulf Domestic Market

(Prices are f.o.b. Gulf oil terminals in Texas and Louisiana in shipment of 20,000 bbls. or more, representing sellers' opinions, for domestic shipment only).

	Sept. 30	Sept. 23	Sept. 16
U. S. Motor gasoline	7.50	7.50	7.50
41-43 w.w. kerosene	6.50 – 6.625	6.50	6.50
*26-32 translucent gas oil	4.00 – 4.125	4.00	4.00
*Less than ½ of 1% sulphur.			

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	Sept. 30	Sept. 23	Sept. 16
Gasoline, U. S. Motor, 53-55 Gravity	6.50 – 7.50	6.75 – 7.50	6.75 – 7.25
Gasoline, U. S. Motor-blends and special cuts	7.50 –10.00	7.50 –10.00	7.50 –10.00
Gas Oil, 30-34, per barrel	$0.90 –$1.05	$0.90 –$1.05	$0.90 –$1.05
Diesel Oil, 27 plus, per barrel	$0.875–$1.00	$0.875–$1.00	$0.875–$1.00
Bunker oil, 14-18, per barrel	$0.70 –$0.85	$0.70 –$0.85	$0.70 –$0.85
Fuel oil, 14-18 per barrel	$0.60 –$0.85	$0.60 –$0.85	$0.60 –$0.85
Kerosene, 38-40 w.w., 125-150 flash, per gal.	5.75 – 6.25	5.75 – 6.25	5.75 – 6.25
Cased Goods			
Gasoline, U. S. Motor	$1.75 –$1.85	$1.75 –$1.85	$1.75 –$1.85
Kerosene, 38-40 w.w., 125, 150 flash	$1.45 –$1.50	$1.45 –$1.50	$1.45 –$1.50

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)

	Sept. 30 Crude &/or Fuel	Refined Oil &/or Spirits
Calif. to U. K. or Continental ports*	35	40–41
Gulf to U. K. or Continental ports*	22–23	25–27
North Atlantic to U. K. or Continental ports*	19–20	23–25
Calif. to North Atlantic ports (not E. of N. Y.)	$0.95	$0.90
Gulf to North Atlantic ports (not E. of N. Y.)**	34–36	37–38

*Continental ports in the range between Bordeaux and Hamburg, both inclusive.
**Venezuela loading same rate. For Tampico 3c per bbl. additional.

Your Customers will Appreciate This Easy and Profitable Service

THE minute a fellow finds his gas tank cap gone—he wants a new one. No shopping around. He wants it *then and there!* If you're not ready to supply him, you may lose the sale of gas and oil.

There's fine service business waiting for you on Monmouth Gas Tank Caps—an opportunity to do your customer a favor, without sales effort, and with a nice profit on every transaction.

Monmouth Caps fit every car. Go on easily with just one-eighth of a turn—leak proof—rattle proof—can't be lost. A safety chain connects each cap permanently with the gas tank.

And an attractive display board is furnished to do all the necessary selling—takes no time or effort away from the regular business of selling gas and oil.

One car out of every twelve lost a gas tank cap last year—most of these were replaced by Monmouth at filling stations.

Made and sold by
THE EATON BUMPER & SPRING SERVICE CO.
Cleveland, Ohio

Branches: Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Kansas City, Philadelphia

Fit every car
Never get lost
Can't rattle
Go on easily
Come off quickly
Leak-proof

Tank Wagon Service Station Markets for Gasoline and Kerosene

(OIL PRICE HANDBOOK has t. w. and s. s. markets for a whole year, arranged for quick reference)

These Prices in Effect Sept. 30, 1929, as Posted by Principal Marketing Companies

S. O. NEW JERSEY TERRITORY

	Gasoline				Oil
	T.W.	Tax	Total T.W.	S.S.	T.W
Atlantic City, N. J.	14	2	16	18	13
Newark, N. J.	16	2	18	20	13
Annapolis, Md.	16	4	20	22	13
Baltimore, Md.	16	4	20	22	12
Cumberland, Md.	16	4	20	22	13
Washington, D. C.	16	2	18	20	12
Danville, Va.	16	5	21	23	12
Norfolk, Va.	16	5	21	23	13
Richmond, Va.	16	5	21	23	13
Roanoke, Va.	15	5	20	21	13
Petersburg, Va.	16	5	21	23	13
Charleston, W. Va.	16	4	20	22	13
Keyser, W. Va.	16	4	20	22	13
Parkersburg, W. Va.	16	4	20	22	13
Wheeling, W. Va.	16	4	20	22	13
Charlotte, N. C.	16	5	21	23	13
Hickory, N. C.	16	5	21	23	13
Mt. Airy, N. C.	16	5	21	23	13
Salisbury, N. C.	16	5	21	23	13
Charleston, S. C.	16	6	22	24	13
Columbia, S. C.	16	6	22	24	13

Note: 2c per gallon discount off t. w. price to dealers thru S. O. New Jersey territory.

CONTINENTAL OIL

Denver, Colo.	14	4	18	21	15 5
Pueblo, Colo.	14	4	18	21	15 5
Grand J nc., Colo.	18.5	4	22.5	25.5	19
Casper, Who.	17	4	21	24	14
Cheyenne, Wyo.	18	4	22	25	15.5
Butte, Mont.	20.5	5	25.5	28.5	20
Helena, Mont.	20.5	5	25.5	28.5	20
Salt Lake City, Utah.	18.5	3½	22	25	17
Boise, Ida.	20.5	4	24.5	27.5	19
Twin Falls, Ida.	20.5	4	24.5	28.5	19
Albuquerque, N. M.	16	5	21	24	17

S. O. CALIFORNIA

Phoenix, Ariz.	14	4	18	22	20.5
Los Angeles, Cal.	16.5	3	19.5	22.5	15.5
Fresno, Cal.	17	3	20	23	17
San Francisco, Cal.	17	3	20	23	15.5
Reno, Nev.	21	4	25	28	19
Portland, Ore.	17.5	3	20.5	23.5	16.5
Seattle, Wash.	17.5	3	20.5	23.5	16.5
Spokane, Wash.	21.5	3	24.5	27.5	20.5
Tacoma, Wash.	17.5	3	20.5	23.5	16.5

Note: 4c per gal. discount to dealers off t.w. price of gasoline to customers taking tank truck delivery, thru S. O. California territory, except 1c discount at Phoenix to dealers only.

S. O. LOUISIANA

Little Rock, Ark.	16	5	21	23	13
Alexandria, La.	‡15	4	19	21	†16
Baton Rouge, La.	14	4	18	20	†14.5
Lake Charles, La.	††16.5	4	††20.5	††22.5	†16
New Orleans, La.	*12.5	4	*16.5	18.5	†13
Shreveport, La.	15.5	4	19.5	21.5	†15
Lafayette, La.	**16	4	**20	**22	†14
Bristol, Tenn.	16	5	21	22	14
Chattanooga, Tenn.	15	5	20	22	14
Knoxville, Tenn.	15	5	20	22	16
Nashville, Tenn.	16	5	21	23	16
Memphis, Tenn.	15	5	20	22	12.5

*New Orleans gasoline prices include 1c parish tax in addition to 4c state tax, and kerosene prices include 1c state tax and 1c parish tax.

†Kerosene price in Louisiana includes 1c state tax.

**Lafayette gasoline prices include 1c parish tax in addition to 4c state tax.

††Lake Charles gasoline prices include 1c parish tax.

Note: 2c per gallon off t.w. price to dealers thru S. O. Louisiana territory.

S. O. KENTUCKY

Ashland, Ky.	13	5	18	19	15.5
Catlettsburg, Ky.	13	5	18	19	15 5
Lexington, Ky.	15	5	20	22	15 5
Louisville, Ky.	16	5	21	23	15
Covington, Ky.	16	5	21	22	15.5
Clarksdale, Miss.	13	5	18	20	12.5
Gulfport, Miss.††	17.5	5	22.5	24.5	14
Jackson, Miss.	16	5	21	23	13
Natchez, Miss.	15.5	5	20.5	20.5	14
Vicksburg, Miss.	15.5	5	20.5	22.5	14
Birm ngham, Ala.	15	4	19	21	15
Mobile, Ala.‡	16	4	20	22	15
Montgomery, Ala.*	17	4	21	23	16.5
Atlanta, Ga.	14	6	20	22	†16.5
Augusta, Ga.	14	6	20	22	†15.5
Macon, Ga.	17	6	23	25	†16.5
Savannah, Ga.	16	6	22	24	†15.5
Jacksonville, Fla.	16	6	22	24	14.5
Miami, Fla.	17	6	23	25	15.5
Tampa, Fla.	16	6	22	24	14.5
Pensacola, Fla.**	17	6	23	25	14.5

Latest Changes in Tank Wagon Prices

Gasoline Changes

S. O. Louisiana—T.w. up 2c through states of Louisiana, Tennessee, and Arkansas with exception of Chattanooga where t.w. advanced 4c and s.s. 2c, **Sept. 24.** On the same date a 2c per gallon discount off t.w. price to dealers only was put into effect.

S.s. up 1c to 22c, Bristol, **Sept. 20.**

Prices at Alexandria since **Aug. 1** should have been t.w. 17c and s.s. 21c. The Rapides Parish tax of 1c did not go into effect on that date and is still pending in the courts.

S. O. New York—The s.s. price at New York City since **Aug. 30** should have been 18c instead of 19c. Prices are corrected in this issue.

S. O. Kentucky—S.s. cut 2c, Natchez, to 20.5c same as t.w., **Sept. 30.**

Magnolia Petroleum—T.w. and s.s. cut 1c, Texarkana, to 17c and 19c respectively, including 4c tax, **Sept. 20.**

T.w. and s.s. cut 2c, Houston, to 13 and 17c respectively, including 4c tax, **Sept. 25.**

Note: Net price to dealers is 2c under posted t.w. price thru S. O Kentucky territory.

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included. ‡Mobile gasoline prices in lude 1c city tax

†Georgia kerosene prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct 15 1926.

††Both tank wagon prices at Gulfport include Harrison county privilege tax of 2c

S. O. NEBRASKA

	Gasoline			Oil
	T.W.	Tax	Total T.W.	S.S.	T.W.
Omaha, Neb.	16.25	4	20.25	22 25	13.25
McCook	17.75	4	21 75	23 75	14 75
Norfolk	16.75	4	20 75	22 75	13.75
North Platte	17 75	4	21.75	23.75	14.50
Scottsbluff	17.75	4	21 75	23.75	14.25

S. O. INDIANA

Chicago, Ill.	16	3	19	20	13
Decatur, Ill.	16.2	3	19.2	20 2	13.1
E. St Louis, Ill.	15.4	3	18.4	17.4	12 2
Joliet, Ill.	16.4	3	19 4	20 4	13 3
Peoria, Ill.	16.2	3	19 2	20.2	13 1
Quincy, Ill.	16.2	3	19.2	20 2	12 9
Indianapolis, Ind.	16.2	4	20.2	21.2	14.2
Evansville, Ind.	16	4	20	21	14
South Bend, Ind.	16.4	4	20 4	21 4	14 4
Detroit, Mich.	16.8	3	19 8	20 8	14 7
Grand Rapids, Mich.	16.7	3	19 7	20 7	14.6
Saginaw, Mich.	16.9	3	19 9	20.9	14 8
Green Bay, Wisc.	16 6	2	18.6	19.6	13 4
Madison Wisc.	16.3	2	18.3	17.3	13 1
Milwaukee, Wisc.	16 1	2	18 1	19.1	12 9
La Cross, Wisc.	17.2	2	19 2	20 2	14
Minneapolis, Minn.	17.2	3	20 2	21.2	13.9
Duluth, Minn.	17.5	3	20.5	21.5	13.9
Mankato, Minn.	17.1	3	20 1	21 1	13.7
Des Moines, Ia.	16.5	3	19 5	20 5	13.3
Davenport, Ia.	16.5	3	19 5	20 5	13.3
Sioux City, Ia.	16.1	3	19.1	20.1	12.9
Mason City, Ia.	16.5	3	19.5	20.5	13.3
St. Louis, Mo.	*15.9	2	17.9	18.9	12.3
Kansas City, Mo.	†16.9	2	18.9	19.9	11.6
St. Joseph, Mo.	†16.5	2	18.5	19 5	12.2
Fargo, N D.	18.9	3	21.9	22 9	15.9
Grand Forks, N. D.	19.2	3	22.2	23.2	16.2
Minot, N. D.	18.9	3	21.9	22.9	15.9
Pierre, S. D.	17	4	21	22	14.4
Huron, S. D.	17.3	4	21.3	22.3	14.7
Wichita, Kans.	14.8	3	17.8	18.8	11.8
Bartlesville, Okla.	14.5	4	18.5	19.5	11.5

S. O Indiana's quantity contract price schedule thru territory except Chicago on tank truck deliveries of gasoline, figured from the service station price, is 2c for 500 gals. or more a month; 2½c for 2000 gals. or more a month and 3c for 6000 gals. or more a month.

In Chicago and vicinity, these discounts apply. Over 500 gals. per month, 2c per gal. off service station price; over 1,000 gals. per month, 4c per gal. off service station price.

*Includes city tax of ½c.

†Includes city tax of 1c.

S. O. OHIO

Ohio state-wide.	15	4	19	20	13
Belmont, Columbiana, Jackson, Mahoning, Meigs, Noble, Vinton, Washington, & Jefferson Counties, & *14 Competitive Pts.	14	4	18	18	13
At †5 Competitive Points	14	4	18	19	13
Bryan and Findlay.	13	4	17	17	13

Note:—Discount to dealers and commercial accounts generally thru Ohio is 2c per gal. off t.w. price. Exceptions: 3c off in the 9 counties and 14 competitive points quoted on second line above and at Findlay, except that commercial accounts in Belmont, Columbiana, Jackson, Mahoning, Vinton ano Jefferson counties get 1c off, dealers get 3c.

†These 5 points are: Hicksville, Arlington, Mortimer, Mendon, and Nevada.

*These 14 points are: Arcadia, Perrysburg, Fostoria, Urbana, Jamestown, Marion, St. Paris, Ada Lima, Hamilton, Willard, Wapakoneta, Celina, and Piqua.

MAGNOLIA PETROLEUM

Muskogee, Okla.	13	4	17	20	13
Oklahoma City.	13	4	17	20	10
Tulsa, Okla.	11	4	15	19	10
Fort Smith, Ark.†	11	†4	15	17	12
Little Rock, Ark.	14	5	19	23	13
Texarkana, Ark.*	13	*4	17	19	12
Dallas, Tex.	13	4	17	21	13
Fort Worth, Tex.	13	4	17	20	12
Houston, Tex.	9	4	13	17	11
San Antonio, Tex.	13	4	17	21	11
El Paso, Tex.	11	4	15	18	16

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 5c Arkansas tax applies.

†Within city of Fort Smith, Oklahoma tax of 4c applies. In this district outside of the city the 5c Arkansas tax applies.

S. O. NEW YORK

Due to local price conditions at many points in S. O. New York territory, actual prices on both gasoline and kerosene are being made at under the posted tank wagon prices published below.

Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings.	14	2	16	18	15
Borough of Staten Island.	15	2	17	19	15
Albany, N. Y.	16	2	18	20	15
Buffalo, N. Y.	16	2	18	20	14
Rochester, N. Y.	16	2	18	20	13
Syracuse, N. Y.	16	2	18	20	12
Boston, Mass.	16	2	18	20	15
Augusta, Me.	16	4	20	21	15
Manchester, N. H.	16	4	20	22	15
Burlington, Vt.	16	4	20	22	15

Note:—S. O. New York allows concessions of 1 to 2c per gal. to dealers under posted tank wagon prices.

*The Standard of New York does not operate stations in New York City. This figure is the retail price of a principal station operator in New York selling Socony gasoline

ATLANTIC REFINING

Pittsburgh, Pa.	16	*	16	22	13
Philadelphia, Pa.	16	*	16	22	13
Allentown, Pa.	16	*	16	22	13
Erie, Pa.	13	*	13	17	13
Scranton, Pa.	16	*	16	22	13

Above prices include these inspection fees on both gasoline and kerosene, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosene; Arkansas, 1/20c on both; Florida, 1/8c on both; Georgia, 1/10c on both; Indiana, 4/25c to 1/2c on both; Kansas, 3/50c on both. Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 3/10c to 1/2c on both; Nebraska, 3/50c to 1/2c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina, 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosene; Wisconsin, 3/50c on both.

Kerosene inspection fees only, per gallon; Iowa, 7/100c. Michigan 1/5c to 4/5c per gal.

In Illinois, cities and villages have the power to appoint oil inspectors and fix inspection fees which is done in some instances. In some cases in the above state or other states there are local inspection fees.

Tank Wagon, Service Station Markets for Gasoline and Kerosene

Prices in Effect Sept. 30, 1929

ATLANTIC REFINING

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
Altoona, Pa.	16	*	16	22	13
Williamsport, Pa.	15	*	15	19	13
Dover, Del.	16	3	19	21	13
Wilmington, Del.	16	3	19	21	13
Boston, Mass.	16	2	18	20	15
Springfield, Mass.	16	2	18	20	15
Worcester, Mass.	16	2	18	20	15
Fall River, Mass.	16	2	18	20	13
Providence, R. I.	16	2	18	20	13
Hartford, Conn.	16	2	18	20	14
New Haven, Conn.	16	2	18	20	15
Atlantic City, N. J.	14	2	16	18	13
Camden, N. J.	16	2	18	20	13
Trenton, N. J.	16	2	18	20	13
Annapolis, Md.	16	4	20	22	13
Baltimore, Md.	16	4	20	22	12
Hagerstown, Md.	12	4	16	18	13
Richmond, Va.	16	5	21	23	13
Wilmington, N. C.	16	5	21	23	13
Brunswick, Ga.	16	6	22	24	**15.5
Jacksonville, Fla.	16	6	22	24	14.5

Note: 2c per gal. discount off t.w. price to dealers thru territory: also 2c off to commercial accounts under contract for one year.

*4-cent state tax is collected by retail dealer and paid by him directly to state.

**Georgia kerosene prices include 1c state tax.

V. M. & P. NAPHTHA

(Changes ordinarily occur coincident with gasoline price changes)

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Naphtha
Chicago	15.7	17.2	19
Detroit	17.4	18.9	20 7
Kansas City	†15.9	†17.4	†19.2
Milwaukee	16.4	*19.9	*21 7
Minneapolis	*19.7	*21.2	*23
St. Louis	15.6	17.1	18.9
New York		17	23
Boston		19	23

*Includes 2c state tax. †Includes 1c city tax.

Petroleum Spirits

Tank Cars (Solvent)

New York refineries	11.50–12.00
Philadelphia refineries	11.50–12.00

Tank Wagon or Steel Barrels

New York City	16–18
New England	18–19
New Jersey	16–18
Pennsylvania	18–19

Note: 2c off above t.w. prices to large buyers in some instances.

CANADA

(Per Imperial Gallon, which is 1.2 American Gallons)

	Gasoline T.W.	Tax	Total T.W.	S.S.	Oil T.W.
ONTARIO					
Toronto	20.5	5	25.5	29	21
Ottawa	14.5	5	19.5	23	21
Cochrane	25.5	5	30.5	..	26
Ft. William	23.5	5	28.5	32	23 5
MANITOBA					
Winnipeg	22.5	3	25.5	29	22.5
SASKATCHEWAN					
Regina	27	3	30	34	27
ALBERTA					
Edmonton	28.5	5	33.5	37	28.5
Calgary	24.5	5	29.5	33	24.5
BRITISH COLUMBIA					
Vancouver	23	3	26	30	24
QUEBEC					
Montreal	21.5	5	26.5	30	22
Quebec City	22.5	5	27.5	31	23
Three Rivers	22.5	5	27.5	31	23
NEW BRUNSWICK					
St. John	25	5	30	34	25
Moncton	25	5	30	34	25
NOVA SCOTIA					
Halifax	25	5	30	34	25
Sydney	25	5	30	34	25
PRINCE EDWARD ISLAND					
Charlottetown	25	5	30	34	25

Note: In districts surrounding these points 1c additional is added to city price.

FLOODLIGHT YOUR STATIONS
with Golden Glow Lantern-Floodlights

Lantern-Floodlight with glass panels removed, showing reflector mounted inside.

These Lantern-Floodlights serve the dual purpose of providing the ornamental effect of a lantern and floodlighting the entire station as well. They provide beautiful illumination without glare and are attractive day and night. Lantern-Floodlights are installed on your own property and controlled from your own meters. Please ask for Bulletin No. 273. We also manufacture a complete line of all aluminum projectors of highest quality.

ELECTRIC SERVICE SUPPLIES CO.

Home office and plant at 17th & Cambria Sts., PHILADELPHIA; District Offices at 111 No. Canal St., CHICAGO; 50 Church St., NEW YORK; Bessemer Bldg., Pittsburgh; 88 Broad St., Boston; General Motors Bldg., Detroit; 316 N. Washington Ave., Scranton; Canadian Agents, Lyman Tube & Supply Company, Ltd., Montreal, Toronto, Vancouver.

Typical Complete Lantern-Floodlight Unit

HIGH GRADE PETROLEUM PRODUCTS

Made by the Oldest Pennsylvania Oil Refiners

CYLINDER STOCKS, (Filtered and Unfiltered).
MOTOR OILS—to match any specification.
High Grade Burning Oils.
300° Mineral Seal and Railroad Oils.
High Grade Transformer Oils.

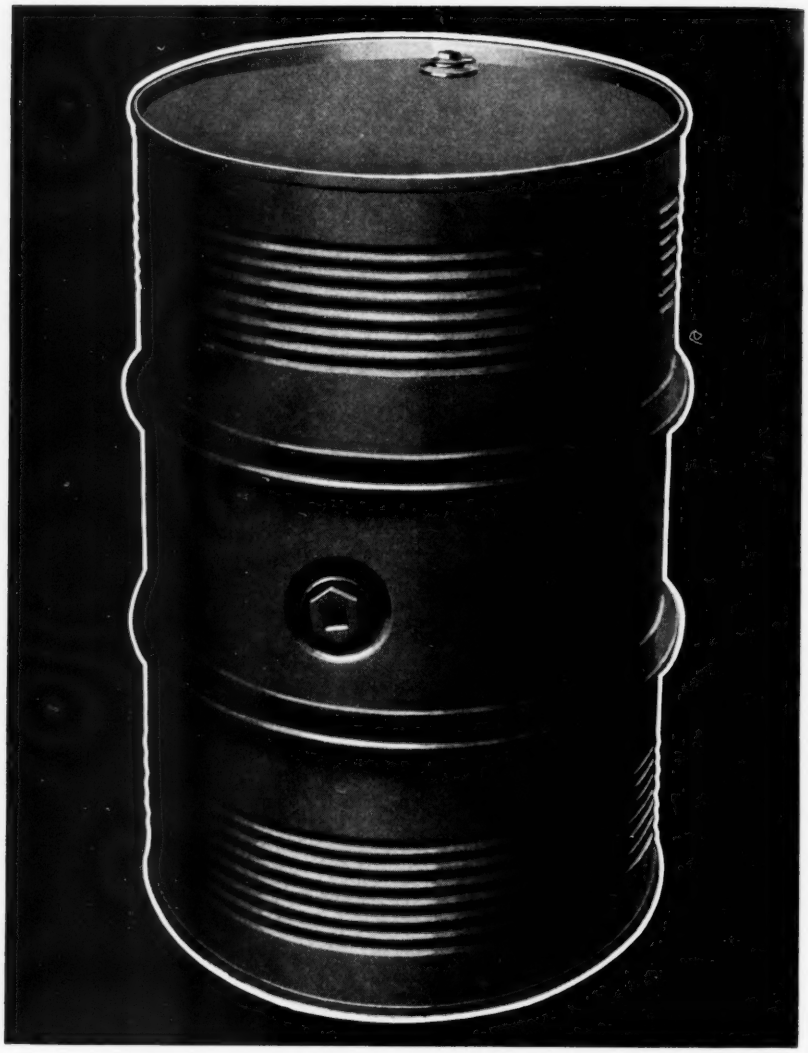
A. D. MILLER SONS' COMPANY
PITTSBURGH, PA.

STEEL
DRUM ACCESSORIES
CORPORATION

BUFFALO, NEW YORK

"The House of Drum Faucets"

P. I. W.



Behind the P. I. W. trademark is an organization thoroughly versed in steel barrel requirements. Our experience in this field has taught us that to build good barrels alone is not enough—but—to build good barrels and be able to ship them on short notice is an accomplishment. These are the reasons for P. I. W. Steel Barrel popularity.

May we serve you on your next order?

The PETROLEUM IRON WORKS Co.

P.I.W. STEEL BARRELS

SHARON, PENNA.

NEW YORK CHICAGO TULSA

Crude Oil Prices (in Effect Sept. 30, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in New York Transit Lines (Allegheny, N. Y. District) *$3.30
Bradford District Oil in National Transit Lines (Bradford District) *3.30
Penna. Grade Oil in National Transit Lines (Other Pennsylvania) *3.30
Penna. Grade Oil in Southwest Penna. Pipe Lines (Other Pennsylvania) 3.25
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) 3.15
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O. district) 2.95
Corning Grade in Buckeye Pipe Lines (Ohio) 1.90
Corning, O., heavy grade 1.80
Somerset Oil in Cumberland Pipe Lines (Kentucky) 1.80
Ragland Grade in Cumberland Pipe Lines (Kentucky) $0.60

*Oil run prior to July 1, 1929 is $3.25 per bbl.

(Posted by Stoll Oil Refining Co.)

Oil City, Ky., oil in Stoll lines $1.80

MICHIGAN

(Posted by Dixie Oil Co.)

Traverse and Dundee (Muskegon):

32-32.9	$1.25	39-39.9	$1.60
33-33.9	1.30	40-40.9	1.65
34-34.9	1.35	41-41.9	1.70
35-35.9	1.40	42-42.9	1.75
36-36.9	1.45	43-43.9	1.80
37-37.9	1.50	44 and above	1.85
38-38.9	1.55		

(Posted by Pure Oil Co.)

Midland, Midland County $1.70

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
Effective May 21, 1929

Wooster	$1.90	Princeton	$1.75
Lima	1.80	Illinois	1.75
Waterloo	1.20	Plymouth	1.28
Indiana	1.57	West Kentucky	1.83

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Petrolia $2.20
Oil Springs 2.27

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Prairie Oil & Gas Co.
(In Oklahoma, Kansas, North and East Central Texas)
Effective May 20, 1929

Below 25	$0.85	35-35.9	$1.40
25-25.9	0.90	36-36.9	1.45
26-26.9	0.95	37-37.9	1.50
27-27.9	1.00	38-38.9	1.55
28-28.9	1.05	39-39.9	1.60
29-29.9	1.10	40-40.9	1.65
30-30.9	1.15	41-41.9	1.70
31-31.9	1.20	42-42.9	1.75
32-32.9	1.25	43-43.9	1.80
33-33.9	1.30	44 and above	1.85
34-34.9	1.35		

Humble Oil & Refining Co. Prices

(Ranger, North Texas, Mexia, Powell, Boggy Creek, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes all in Texas.)

May 20, 1929, same schedule as Prairie in above fields.

Magnolia Petroleum Co.

(In Oklahoma, Kansas and North and East Central Texas)

May 20, 1929, Magnolia posted in above fields and in Panola Co., same schedule as Prairie, except these grades:

Below 26	$0.70	29-29.9	$0.95
26-26.9	0.75	30-30.9	1.05
27-27.9	0.85	31-31.9	1.15
28-28.9	0.90		

May 20, 1929, Glasscock, Crane, Upton, Winkler, Howard and Mitchell Counties same prices as Humble's postings in West Texas which see.

Iatan district $0.93
Corsicana heavy 0.80
Luling 0.90
Mirando 0.90

Carter Oil Co.

(Oklahoma and Kansas)

May 20, 1929, same schedule as Prairie except Carter does not post oil below 25.

PANHANDLE, TEXAS

Humble Oil & Refining Co.
Effective May 20, 1929

Hutchinson and Carson Counties:

Below 32	$0.90	38-38.9	$1.25
32-32.9	0.95	39-39.9	1.30
33-33.9	1.00	40-40.9	1.35
34-34.9	1.05	41-41.9	1.40
35-35.9	1.10	42-42.9	1.45
36-36.9	1.15	43-43.9	1.50
37-37.9	1.20	44 and above	1.55

Wheeler County:

Below 30	$0.90	37-37.9	$1.30
30-30.9	0.95	38-38.9	1.35
31-31.9	1.00	39-39.9	1.40
32-32.9	1.05	40-40.9	1.45
33-33.9	1.10	41-41.9	1.50
34-34.9	1.15	42-42.9	1.55
35-35.9	1.20	43-43.9	1.60
36-36.9	1.25	44 and above	1.65

Gray County:

Below 29	$0.90	37-37.9	$1.35
29-29.9	0.95	38-38.9	1.40
30-30.9	1.00	39-39.9	1.45
31-31.9	1.05	40-40.9	1.50
32-32.9	1.10	41-41.9	1.55
33-33.9	1.15	42-42.9	1.60
34-34.9	1.20	43-43.9	1.65
35-35.9	1.25	44 and above	1.70
36-36.9	1.30		

Above prices met by The Texas Co. and Magnolia on May 20.

WEST TEXAS

Humble Oil & Refining Co.
Effective May 20, 1929

Winkler, Crane, Upton, Crockett, Howard and Pecos Counties, also Lea County, N. Mex.

Below 25	$0.70	25-25.9	$0.74
26-26.9	$0.78	32-32.9	$1.02
27-27.9	0.82	33-33.9	1.06
28-28.9	0.86	34-34.9	1.10
29-29.9	0.90	35-35.9	1.14
30-30.9	0.94	36 and above	1.18
31-31.9	0.98		

May 20, 1929, The Texas Co. posted same prices as Humble in Crane, Upton, Pecos and Winkler., and Magnolia in Crane, Upton, Winkler, Glasscock, Howard and Mitchell

SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)
Effective May 20, 1929

Mirando $0.90
Salt Flat 1.25

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado, Crichton, De Soto and **Cotton Valley.
Effective May 22, 1929

Below 28	$1.00	36-36.9	$1.45
28-28.9	1.05	37-37.9	1.50
29-29.9	1.10	38-38.9	1.55
30-30.9	1.15	39-39.9	1.60
31-31.9	1.20	40-40.9	1.65
32-32.9	1.25	41-41.9	1.70
33-33.9	1.30	42-42.9	1.75
34-34.9	1.35	43-43.9	1.80
35-35.9	1.40	44 and above	1.85

**Cotton Valley, below 36, $0.85. Beginning with 36-36.9, same schedule as above.

Smackover, below 24 ..... $0.85
do 24 and above 1.00
Bellevue 1.38
*Urania, La 1.10
†East El Dorado 0.75

*Posted by Louisiana Oil Refining Corp.
†Posted by Magnolia Petroleum Co.

May 20, The Texas Co. same schedule in Louisiana as Standard, plus these grades: 24-24.9, $0.85; 25-25.9, $0.90; 26-26.9, $0.95; 27-27.9, $1.00.

May 22, Magnolia, Atlantic, Shreveport-Eldorado Pipe Line, Louisiana Oil, and Gulf Companies met Standard schedule in Louisiana-Arkansas fields.

STEPHENS, ARKANSAS

Louisiana Oil Refining Corp., and Atlantic Oil Producing Co.
Effective May 22, 1929

Below 28	$0.90	30-30.9	$1.02
28-28.9	0.94	31-31.9	1.06
29-29.9	0.98	32 and above	1.10

GULF COASTAL

Posted by Humble Oil & Refining Co.
Effective May 20, 1929

Grades A	$1.30	29-29.9	$1.30
Grades B:		30-30.9	1.33
Below 25	$1.15	31-31.9	1.36
25-25.9	1.18	32-32.9	1.39
26-26.9	1.21	33-33.9	1.42
27-27.9	1.24	34-34.9	1.45
28-28.9	1.27	35 and above	1.48

Fields classified as A and B are Spindletop, Goose Creek, Hull, Liberty, Sour Lake, West Columbia, Orange, Boling, Pierce Junction, Sugarland and Raccoon Bend. All other fields are Grades A only

Oil Convention Lures Marketers Who Sell

COLUMBUS, O., Sept. 26.—Oil marketers who sell out find an irresistible lure in an oil convention. At the convention of the Ohio Petroleum Marketers Association here Sept. 18 and 19 these men were among those present:

J. L. Marsh, formerly of the Vahey Oil Co., Youngstown, which was sold to Refiners Oil Co., Dayton, last year.

F. M. Morrison, who sold his Accurate Measure Oil Co., Columbus, to Shell Petroleum Corp.

W. W. Springborn, who sold his Fairmount Oil Co., Cleveland, to Cities Service Oil Co. last spring.

Walter H. Bell, manager of the Gerkins Oil Co., Dayton, which was sold to Shell a few weeks ago. Mr. Bell is now director of sales of the Nat. Recording Pump Co., Dayton.

Ocean Shipments From California

LOS ANGELES, Sept. 26.—Bulk petroleum shipments from Los Angeles Harbor for week ending Sept. 21 were as follows (all figures in barrels):

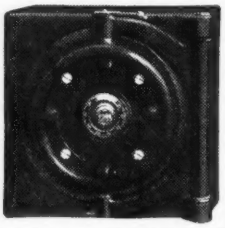
Destination	Crude	Diesel	Gasoline	Kerosene	Distillate	Fuel
Pacific Foreign	159,103	54,984	137,251	.....	.....	575,359
Atlantic Foreign	.....	.....	32,227	23,875	.....	.....
Atlantic Domestic	.....	.....	446,336	.....	73,156	.....
Total	159,103	54,984	615,814	23,875	73,156	575,359

Exports from Tampico District

Company	July	August
Transcontinental-Rayon Cos. (Standard of New Jersey)	465,105	384,293
Huasteca Petroleum Co. (Pan American)	718,737	1,142,732
Mexican Eagle Oil Co., Ltd. (El Aguila)	571,284	399,736
Cia. Mexicana Holandesa "La Carona"	264,661	135,212
Cia. Mexicana Minerva of S. A.	.....	50,418
The Texas Co. of Mexico S. A.	86,792	.....
Sinclair Mexican Companies	304,897	207,697
Empire Gas & Fuel Co.	261,476	66,608
Mexican Atlas Oil Co.	73,644	.....
Mexican Gulf Oil Co.	62,304	.....
Totals	2,808,900	2,386,696

Is this burglar spending your money?

He has made another successful raid upon a filling station. The money he is spending upon Wine, Women and Automobiles belongs to the owner of a station in a town a hundred miles away. Will he be spending your money next week? Not if you install a York Burglary Chest,



YORK SAFE *and* LOCK COMPANY
York, Pa.

PETROLEUM PRODUCTS
From All Fields

Carloads, Tank Cars, and Cargoes
For Domestic or Export

GASOLINE KEROSENE NAPHTHA
CRUDE OIL FUEL OIL GAS OIL FURNACE OIL
CYLINDER STOCKS
UNFILTERED AND FILTERED
BRIGHT STOCKS
COLD SETTLED AND CENTRIFUGED
PALE — RED OILS
WAX — PETROLATUM
TECHNICAL WHITE OILS
WHITE MINERAL OILS

For 35 years of reliability, service and integrity— this Company enjoys an International Reputation

JAMES B. BERRY SONS' CO., INC.
General Office—Oil City, Pa.

District Offices at
New York, Philadelphia, Boston, Chicago
London — Hamburg

Cable Address—JASBER Oil City *All Codes*

A LUMBER WAGON AND A ROLLS-ROYCE

Are somewhat different and yet alike, inasmuch as they both have four wheels. The same holds true in the difference between the requirements of a gasoline tank of the old fashioned wagon delivery and the modern bus chassis. Brown Certified Tanks are custom built for the particular chassis for which they are intended. We are specialists in this line and ask that you let us figure on your requirements.

Speed with Safety

BROWN SHEET IRON & STEEL CO.

964 Berry Ave. **St. Paul, Minn.**

DON'T DELAY—SIGN THE COUPON AND LET US KNOW WHAT YOU WILL NEED.

Check Items on which you want prices.

Complete Bulk Station.....Number of Tanks.....Size.....

Filling Station Tanks.....Size.....Pumps.....

Truck Tanks.....Size.....Compts.....

Other Equipment.....

Name.....Address.....

Crude Oil Prices (in Effect Sept. 30, 1929)

(Crude prices for the whole year in OIL PRICE HANDBOOK published annually)

GULF COASTAL

Prices of The Texas Co.

Effective May 20, 1929

Grades A	$1.30	*Grades B	$1.15
‡Grades B (light crude):			
35-35.9	$1.49	40-40.9	$1.69
36-36.9	1.53	41-41.9	1.73
37-37.9	1.57	42-42.9	1.77
38-38.9	1.61	43-43.9	1.81
39-39.9	1.65	44 and above	1.85

*Grades B include all heavy crudes which do not meet tests for Grades A or for Gulf Coast light crude.

‡The Texas Co.'s gravity and price schedule on all below 35° is same as Humble's postings on Grades B

ROCKY MOUNTAIN FIELDS

Prices of Ohio Oil Co., and Midwest Refining Co.

(Salt Creek prices effective May 20, 1929)

‡Salt Creek 29-29.9	$1.10
" " 30-30.9	1.15
" " 31-31.9	1.20
" " 32-32.9	1.25
" " 33-33.9	1.30
" " 34-34.9	1.35
" " 35-35.9	1.40
" " 36-36.9	1.45
" " 37 and above	1.50
Elk Basin	1.65
Grass Creek light	1.65
Big Muddy	$1.43
Lance Creek	1.68
Rock Creek	1.40
Mule Creek	1.20
Rex Lake	1.10
‡Osage	1.65
‡Cat Creek, Mont.	1.65
Sunburst, Mont	1.75
‡Hogback, N. Mex.	1.70
Artesia, N. Mex.	1.08

‡Posted by Midwest Refining Co. Midwest also buys Grass Creek light and Elk Basin.

CALIFORNIA

***Standard Oil Co. of California**

Gravity	Signal Hill Seal Beach Alamitos Heights Huntington Beach	Inglewood Torrance	Olinda-Brea Canon Richfield	Athens-Rosecrans Dominguez	Elwood Terrace	Whittier La Habra	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Buena Vista & Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Montebello	Kettleman Hills	*Santa Maria (Orcutt)	*Ventura
14-14.9	$ .70	$ .70	$ .70	....	....	$ .70	$ .70	....	$ .50	$ .50	$ .50	$ .50	$ .50	$ .70	....	$ .65	$ .70
15-15.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
16-16.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
17-17.9	.70	.70	.70	....	....	.70	.70	....	.50	.50	.50	.50	.50	.70	....	.65	.70
18-18.9	.75	.75	.75	....	....	.75	.75	....	.50	.55	.56	.56	.56	.70	....	.70	.75
19-19.9	.80	.80	.80	....	....	.80	.80	....	.50	.62	.62	.62	.62	.75	$1.65	.70	.80
20-20.9	.85	.85	.85	....	....	.84	.84	....	....	.68	.68	.68	.68	.80	for	.70	.85
21-21.9	.89	.89	.89	....	....	.88	.88	.89	....	.74	.74	.74	.74	.85	55°	.86	.86
22-22.9	.93	.93	.93	....	....	.91	.91	.92	....	.80	.80	.80	.80	.90	gravity	.87	.87
23-23.9	.97	.97	.97	....	....	....	.94	.95	....	.85	.85	.85	.85	.95	and	.90	.90
24-24.9	1.01	1.01	1.01	1.01	....	....	.97	.98	....	.90	.90	.88	.88	.98	over	.94	.94
25-25.9	1.05	1.05	1.05	1.05	....	....	1.00	1.01	....	.95	.95	.91	.91	1.01	....	.98	.98
26-26.9	1.09	1.09	1.09	1.09	....	....	1.04	1.04	....	1.00	1.00	.94	.94	1.04	....	1.02	1.02
27-27.9	1.13	1.13	1.13	1.13	....	....	1.08	1.07	....	1.05	1.05	.98	.97	1.07	....	....	1.06
28-28.9	1.17	1.17	1.17	1.17	....	....	1.12	1.10	....	1.10	1.10	1.02	....	1.10	....	....	1.10
29-29.9	1.21	....	1.21	1.21	....	....	1.16	1.15	....	1.16	1.16	1.06	....	1.13	....	....	1.14
30-30.9	1.25	....	1.25	1.25	....	....	1.20	1.20	....	1.22	1.22	1.10	....	1.16	....	....	1.18
31-31.9	1.30	....	....	1.30	....	....	....	1.25	....	1.28	1.28	1.14	....	....	....	....	1.23
32-32.9	1.35	....	....	1.35	....	....	....	1.30	....	1.34	1.34	1.18	....	....	....	....	1.28
33-33.9	....	....	....	1.41	....	....	....	1.35	....	1.40	1.40	1.22	....	....	....	....	1.34
34-34.9	....	....	....	1.47	$1.16	....	....	1.40	....	....	1.46	1.26	....	....	....	....	....
35-35.9	....	....	....	1.53	1.22	....	....	1.45	....	....	....	1.30	....	....	....	....	....
36-36.9	....	....	....	1.59	1.28	....	....	1.50	....	....	....	....	....	....	....	....	....
37-37.9	....	....	....	1.65	1.34	....	....	1.55	....	....	....	....	....	....	....	....	....
38-38.9	....	....	....	1.71	1.40	....	....	1.60	....	....	....	....	....	....	....	....	....
39-39.9	....	....	....	1.77	1.46	....	....	1.65	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	1.83	1.52	....	....	....	....	....	....	....	....	....	....	....	....
41-41.9	....	....	....	1.89	1.58	....	....	....	....	....	....	....	....	....	....	....	....
42-42.9	....	....	....	1.95	1.64	....	....	....	....	....	....	....	....	....	....	....	....

*Santa Maria and Ventura postings are by Union Oil Co. Union Oil Co. posts same prices in all above fields as Standard except it does not post prices in Wheeler Ridge, Whittier, La Habra, Newhall and Kettleman Hills. Standard does not contract for crude testing 11-13.9 gravity, but pays 45c a barrel when purchased.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	Sept. 30	Sept. 23
Soda Ash light 58% bags, cwt.	$1.32	$1.32
Silicate of Soda 60 deg. drums, cwt.	$1.55	$1.55
Silicate of Soda 40 deg. tank cars, cwt.	$0.60	$0.60
Silicate of Soda 40 deg. drums cwt.	$0.80	$0.80
Sal Soda wks.	$0.90-1.00	$0.90-1.00
Caustic Soda 76% solid, cwt.	$2.90	$2.90
Sulfuric Acid 60 deg. tank cars, f.o.b. shipping point per ton	$11.00	$11.00
Oleum 20%, fuming sulfuric, tank cars, wks.	$18.50	$18.50
Sulfur, flowers of cwt.	$3.10-4.00	$3.50-4.50
Liquid Chlorine, tank cars, wks. lb.	3.50–5.00	3.50–5.00

Compounders' Supplies

	Sept. 30	Sept. 23
Vegetable Oils		
Linseed carloads, spot lb.	15 80	16.30
Tanks, spot	15.00	15.50
Soya Bean, Tanks, coast, lb.	11.00	10.50
Oleic Acid		
Distilled, tanks lb.	9.75	9.75
Distilled, bbls. lb.	10.625	10 625
Saponified, tanks lb.	9.75	9.75
Saponified, bbls. lb.	10.625	10.625
Lard Oils		
Prime Winter Strained lb.	15.25	15 25
Extra Winter Strained lb.	12.75	12 75
Extra lb.	12.50	12 50
Extra No. 1 lb.	12.00	12 00
No. 1 lb.	11.75	11.75
No. 2 lb.	11.50	11.50
Tallow oil lb.	11.00	11.00
Neatsfoot Oil		
Pure, bbls. lb.	14.50	14.50
Extra, bbls. lb.	12.25	12.25
No. 1 bbls. lb.	12.00	12.00
Cold Pressed lb.	12.50	12.50
Fish Oils		
Menhaden Oil		
Light Pressed gal.	70	64
Light Pressed, tank cars, N.Y. gal.	60	58
White bleached gal.	76	70
Yellow bleached gal.	73	67
Whale, extra winter bleached, gal.	84	84
Naval Stores		
Steam distilled turpentine, N. Y. gal.	53	53
Steam distilled turpentine, Savannah gal.	53	48
Gum turpentine, N. Y. gal.	56.50	57.75
Gum turpentine, f.o.b. cars Savannah gal.	50 50	52.25
Wood Rosin F, N. Y. bbl.	$8 05	$7 80
Wood Rosin F, Savn'h. bbl.	$7.25	$7.00
Gum Rosin B, N. Y. bbl.	$9.00	$9.00
Gum Rosin B, f.o.b. cars Savannah bbl.	$8.15	$8.20
Rosin oil, pure gal.	61	61
Rosin oil, compounded gal.	51	50
Pine Tar		
Kiln burnt bbl.	$13.00–14.00	$13.00–14.00
Retort bbl.	$13.50–14.50	$13.50–14.50
Alcohol		
Denatured Formula 5, in bbls., per gal.	59–66	59–66

OIL STOCKS AND FINANCES

National Petroleum News

Cities Service Plans Common Offering

NEW YORK, Sept. 28.—Directors of Cities Service Co. have decided to give the company's 215,000 stockholders an opportunity to buy additional common stock. The volume of the stock to be issued and the nature of the offer will be determined at a special meeting of the board Oct. 10.

It is said in financial circles that one share of new stock will be offered for subscription for each 10 shares of stock now held. It is said the stock will be offered at around $40 a share or approximately two thirds the present market price of the outstanding stock.

Socony-Vacuum Merger Again Reported

NEW YORK, Sept. 28.—Official confirmation was lacking as late as today to the report published early in the week that the terms of consolidation of the Standard Oil Co. of New York and the Vacuum Oil Co. had been agreed to.

Denial was also lacking but George P. Whaley, president of Vacuum, was quoted as saying that an announcement would be made when the Vacuum was able to announce its plans. There have been rumors these two companies would merge for more than a year.

There has been talk that the consolidation would be effected by an exchange of stock on a basis of three shares of Standard for one of Vacuum. This ratio, however, is slightly out of range of the present market prices of the two stocks.

It is believed that the Department of Justice at Washington has passed the merger plan as it was presented to the department but no official approval of the merger can be expected, it is said, because such approval would be contrary to the policies of the department.

The merging of these two companies presents a different problem from that presented by other mergers of oil companies the last few years because these two companies were former subsidiaries of the Standard Oil Co. of New Jersey which was dissolved by decree of the United States Supreme Court in 1911. That decree, however, did not prevent the consolidating of two or more non-competing units of the Standard Oil group.

Standard of New York and Vacuum have competed in only the lubricating oil field until the Vacuum two or three years ago acquired control of Metro Stations, Inc., of Olean, N. Y., whose central and western New York state filling station chain overlapped with the chain of the Standard of New York.

Because of the growth of other oil companies since the Standard Oil dissolution, all danger of a Standard Oil monopoly is believed to have been eradicated. The Standard of New York now has active competition in its marketing territory from a subsidiary of the present Standard Oil Co. of New Jersey, the Beacon Oil Co.

RICHMOND, Va., Sept. 26.—Members of the Virginia legislative commission seeking a new method for distribution of the county fund portion of the gasoline tax met with the highway commission recently and will meet again on Oct. 9. One of the basis for distribution of 1½ cents of the state "gas" tax among counties was the amount of taxes paid the state on real estate. Counties no longer pay a real estate tax to the state and new distribution method is being sought.

RICHMOND, Va., Sept. 28.—Figures just made public by the Florida State controller's office reveal that taxes of five cents a gallon on gasoline sold in Florida during the fiscal year ended June 30, 1929, totaled $11,207,773.94.

Appoint Booth to Wood Committee

WASHINGTON, Sept. 26.—W. H. Booth, purchasing agent of the Sun Oil Co., Philadelphia, is to represent the American Petroleum Institute on the National Committee of Wood Utilization, Secretary of Commerce Lamont has announced. The petroleum industry, says the announcement, is one of the largest consumers of wood products for general construction and for containers. Mr. Booth's appointment is to enable our industry to keep in touch with the committee's recommendations. He is to cooperate in putting into effect the recommendations.

Court Halts Cleveland Gas Tax Evaders

CLEVELAND, Sept. 26.—The activities of three men here, who formed oil companies and soon dissolved them to evade the state gasoline tax law, were halted by action of the Cuyahoga county common pleas court in granting a petition setting aside the fictitious incorporation. The court's action was announced late this week by the state tax commission at Columbus, Ohio.

Four oil companies were reported as incorporated. One company would be in business until it was time to account to the state for gasoline tax funds. The company then would be sold, leaving no assets. The second company would continue the business until time to pay the gasoline tax. The process was repeated then, the second company leaving no assets in selling out to the third company, and so on to the present fourth company. It was reported that the three men owned all companies, cutting prices on gasoline as no gasoline tax was paid.

Financial Notes

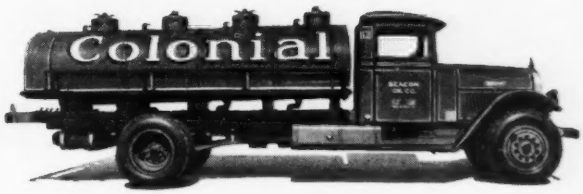
Barnsdall Corp.—Net profit for eight months ended Aug. 31 was $5,316,626 after all charges as compared with $1,986,016 in the corresponding period last year. President E. B. Reeser announced that the company's production had been reduced in California to comply with the California conservation law but that earnings were being maintained as estimated.

Superior Oil Corp.—Earnings in August after expenses and interest but before depreciation and depletion amounted to $330,682 as compared with $244,826 in July.

Richfield Oil Co.—Additional $2,500,000 first mortgage, collateral trust 6 per cent convertible bonds has been listed on New York Stock Exchange, bringing total amount of this series of bonds to $27,500,000. Proceeds from the latest issue were used to retire an equivalent amount of Pan-American Petroleum Co. 6 per cent sinking fund bonds dated Dec. 15, 1925, and due Dec. 15, 1940.

Check Off Your Hauling Jobs

There's a standard Brockway-Indiana for every one of them



Brockway Model KW three-ton. Six cylinder heavy duty transport truck.

And *built* for each job! Not merely *adapted* to it. That's why Brockway and Indiana Trucks have been such favorites throughout the petroleum industry for 20 years. They are all-truck construction, no adaptations from passenger car practices! They are rugged, lasting trucks and power units that are doing the toughest kind of work in the oil fields *easily*, and getting away with passenger car ability at traffic signals when in distributing service.

Indiana Model 400. Six cylinder, two-ton transport truck.

Here is the most highly specialized construction. Each part is the product of a leading American manufacturer. Brockway-Indiana engineers devote themselves to transportation problems and to coordinating those parts into trucks that are best fitted to every requirement in the petroleum industry.

See them all at factory branches, on distributors' floors, or most anywhere in your industry.

1 to 10 tons

Indiana Tractor chassis. Six cylinders. One and one-half tons.

BROCKWAY-INDIANA TRUCKS

Brockway Motor Truck Corporation
Cortland, N. Y.—Eastern Division

Indiana Truck Corporation
Marion, Indiana—Western Division

Executive office—420 Lexington Avenue, New York City
General offices—Cortland, N. Y.

Transactions in Oil Shares on New York Stock Exchange

1928 High	1928 Low	1929 High	1929 Low	Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Change
43⅞	27⅛	42⅝	22½	(sh) 922,075	N.P.	Amerada Corp.	50cQ	July 31, 29	4,400	27½	27¾	27	27	— ⅛
85	51¼	64¾	31	(sh) 209,180	N.P.	American Republics Corp.	....	....	9,000	37	43⅜	37	41	— 4⅛
53⅜	37½	47¼	40	$56,000,000	$25	Associated Oil	50cQ	Sept. 30, 29	140	44⅞	45⅛	44⅞	44⅞	— ⅛
62½	50	77⅞	53½	50,000,000	25	Atlantic Refining	‡25cQ	Sept. 15, 29	74,000	61½	63	58⅛	59¼	— 2⅜
53	20	49⅛	33⅛	47,261,125	25	Barnsdall Corp. A	‡50cQ	Aug. 6, 29	32,700	34¾	35⅛	33⅝	34½	— ⅜
51⅛	20	49	38⅛	300,525	25	do B	‡50cQ	Aug. 6, 29	....	....	....	....	....	....
24½	12¼	32	20	(sh) 956,075	N.P.	Beacon Oil	....	....	11,000	29	29½	27½	28	— ½
36	25¼	31	25	$51,524,150	$25	California Petroleum	....	Jan. 1, 29	310	30	30½	29½	30½	— 1
....	....	37¾	29½	(sh) 4,634,163	N.P.	Continental Oil (Delaware)	....	....	40,300	32⅛	33	31⅞	32	— ⅛
94⅞	68	94¾	63	21,031,400	100	General Asphalt	....	....	5,000	84⅜	86	81	81	— 3
141	110⅛	141	104½	6,628,200	100	do pfd	$1.25Q	Sept. 3, 29	600	124¾	125⅛	123	123	— 7
167	79	107	68¾	25,000,000	100	Houston Oil	....	....	79,900	76¾	97⅜	76⅝	91½	+14½
38⅜	21¾	39¼	29⅛	(sh) 1,333,157	N.P.	Independent Oil & Gas	50cQ	July 31, 29	16,500	31¾	31⅜	30¼	30⅜	— 1⅛
39⅝	9	53⅛	29	$4,299,190	$10	Indian Refining	....	Dec. 15, 20	51,400	45½	45⅜	45⅛	42⅝	— 2⅝
37¼	8½	50¾	28	4,550,110	10	do ctfs	....	....	21,100	43⅞	43⅞	40½	41	— 3
185	140	165	160	1,977,700	100	do pfd new	$1.75Q	Oct. 1, 29	....	....	....	....	....	....
39⅛	27⅜	38⅜	26	3,992,387	N.P.	Lago Oil & Transport	....	May 2, 27	1,100	30½	30½	30	30	— 1
19¾	9⅜	18	10⅜	(sh) 1,187,298	N.P.	Louisiana Oil Refining	....	....	12,300	11⅝	11¾	11	11⅛	— ½
96	78	100	89	$4,000,000	$100	do pfd	$1.62½	Aug. 15, 29	150	91	91	90⅜	90⅜	— ⅝
25½	12½	18½	12	(sh) 330,000	N.P.	Maracaibo Oil	....	....	1,800	13½	13½	12¼	12¼	— 1⅛
360	250	295	202	$45,942,800	$100	Mexican Petroleum	$3Q	July 20, 29	10	202	202	†202	202	—16
....	....	....	....	12,000,000	100	do pfd	$2Q	July 20, 29	....	....	....	....	....	....
73	4⅝	69⅜	23⅛	(sh) 995,500	N.P.	Mexican Seaboard	....	Nov. 15, 24	59,800	24⅞	29⅝	†23⅛	28⅝	+ 3⅝
44½	25⅛	39⅞	30½	(sh) 1,857,461	N.P.	Mid-Continent	50cQ	Aug. 15, 29	14,200	32¾	33¼	32	32⅛	— 1⅛
120½	103¼	121	120¼	$6,718,000	$100	do pfd	$1.75Q	Sept. 1, 29	....	....	....	....	....	....
7⅜	2⅜	5⅛	1¾	23,849,720	10	Middle States	....	July 1, 23	7,900	2⅛	2⅛	2	2	— 0
5⅞	1½	3⅝	1⅝	5,950,500	10	do ctfs	....	....	3,400	1⅞	2	1¾	1¾	— ⅛
2¼	1	1½	1	(sh) 3,500,000	N.P.	Pacific Oil	....	....	1,400	1	1	1	1	0
55½	38¼	69	41⅜	$50,000,000	$50	Pan American P. & T.	....	Oct. 20, 27	6,200	63¾	63¾	61¾	62¾	— 1⅛
58⅞	37⅞	69¼	40½	121,101,400	50	do B	....	Oct. 20, 27	51,600	63⅝	64½	62⅛	62⅛	— 1½
28⅜	15½	17½	13⅜	(sh) 400,000	N.P.	Pan American Western B	....	Jan. 30, 27	620	13¾	13⅞	13½	13⅝	— ⅛
21¾	11½	15¼	7	(sh) 199,370	N.P.	Panhandle P & R	....	....	1,200	8	8	†7	7⅛	— ⅞
106¼	70	76	47½	$2,935,200	$100	do pfd	....	July 2, 23	200	50½	50½	50	50	— 9
53⅞	35¼	47	35	(sh) 2,406,803	N.P.	Phillips Petroleum	37½cQ	Oct. 1, 29	33,200	37⅛	39⅛	36⅝	37⅝	+ ⅛
5¼	½	3⅜	1½	$29,622,925	$25	Pierce Oil Corp	....	....	4,500	1⅞	2	1⅝	1¾	0
50	16¼	51½	30	15,000,000	100	do pfd	....	Feb. 1, 22	5,400	37	45	36	41	+ 6
6⅝	3½	5⅞	3⅞	(sh) 2,500,000	N.P.	Pierce Petroleum	....	....	6,200	3⅞	4⅜	†3⅞	4	0
64⅝	59½	65⅝	50	$60,636,450	$25	Prairie Oil & Gas	‡5cQ	Sept. 30, 29	7,900	55⅜	55⅜	54	54	— 1
....	....	65	50	101,250,000	25	Prairie Pipe Line	‡75cQ	Sept. 30, 29	4,800	61	61¾	60⅜	60½	— 1⅛
29⅞	16	25⅞	11½	37,450,850	50	Producers & Refiners	....	Sept. 15, 23	3,400	14	14	12½	12⅝	— ⅛
49⅝	41	45⅜	34	2,845,350	50	do pfd	....	May 1, 25	220	39¾	40½	38	38	— 2
31¼	19	30¾	23½	75,959,255	25	Pure Oil Co	37½cQ	Sept. 1, 29	18,900	26⅛	26¾	25⅞	26	— ⅛
119	108	115½	110½	13,000,000	100	do 8% pfd	$2Q	Oct. 1, 29	80	111½	112	111	112	+ ½
56	23½	49⅝	38¼	47,127,725	25	Richfield Oil	50cQ	Aug. 15, 29	18,800	40⅞	40⅞	†38¼	40	— ⅝
....	....	42½	26½	(sh) 1,200,000	N.P.	Rio Grande Oil Co	‡$1S.A.	July 25, 29	6,900	28¾	28¾	27	27½	— 1
64	44⅝	55¾	31¾	(sh) 546,646	$13.40	Royal Dutch N. Y. shares	$1.873	Aug. 10, 29	111,700	58¾	61½	57⅜	58⅜	+ 1⅜
57½	39⅜	55¾	43	(sh) 65,203,000	£2	Shell Transport & T	$1.447	July 23, 29	....	....	....	....	....	....
39⅝	23¼	31¾	25	12,254,979	N.P.	Shell Union Oil	35cQ	Sept. 30, 29	19,100	27⅝	27⅞	26⅝	26⅝	— ½
27¼	18⅛	40⅛	18¼	$8,357,280	$10	Simms Petroleum	40cQ	Sept. 14, 29	13,800	33⅝	33⅝	30½	30½	— 2½
46¾	17⅜	45	31½	5,494,095	N.P.	Sinclair Consolidated	‡50cQ	July 15, 29	104,400	34⅞	36½	34	34¼	— ⅜
110	102½	111	107¾	$16,025,200	$100	do pfd	$2Q	Aug. 15, 29	900	109⅜	109⅜	108¼	108½	— ⅜
42⅝	25	46½	32⅞	27,396,590	25	Skelly Oil Co	50cQ	Sept. 16, 29	16,900	40⅝	41⅜	40⅛	40⅜	— ⅝
80	53	81⅞	64	(sh) 13,016,435	N.P.	S. O. California	62½cQ	Sept. 16, 29	34,200	74⅛	75¾	72⅛	74¼	+ 1⅜
59¾	37¾	73⅞	48	$612,095,850	$25	S. O. New Jersey	‡25cQ	Sept. 16, 29	529,200	73¼	75¾	72⅛	74¼	+ 1⅜
45½	28¾	47	37⅝	434,094,575	25	S. O. New York	40cQ	Sept. 16, 29	131,900	43⅞	45⅜	42⅝	43⅛	— ⅜
77	31½	75	57	(sh) 1,297,847	N.P.	Sun Oil	25cQ	Sept. 16, 29	1,800	78	81⅞	76½	76½	— 2½
110	100	105½	100	$5,000,000	$100	do pfd	$1.50Q	Sept. 1, 29	190	104¼	104⅝	103	104	+ 1
14¼	2½	22⅞	6	(sh) 1,304,698	N.P.	Superior Oil Corp	....	Dec. 20, 20	19,100	18⅜	20	18⅜	19½	+ ¼
74¾	50	71⅞	57¼	$211,082,925	$25	The Texas Corp	75cQ	Oct. 1, 29	69,700	67¼	67⅞	65	65⅝	— ⅞
26⅝	12⅛	23⅞	15	8,380,340	10	Texas Pacific Coal & Oil	2½%e	Sept. 30, 29	8,100	15⅜	15⅞	†15	15	— ⅜
41½	19⅝	38½	27⅛	(sh) 2,179,275	N.P.	Tide Water Oil Co	20cQ	Sept. 30, 29	700	34¼	34½	33	33	— 1¼
100⅛	86¾	97½	89¾	$20,321,000	$100	do 5½% pfd	$1.25Q	Aug. 15, 29	1,500	91¾	92¼	91¾	92¼	+ ¼
25	14¾	23½	17½	(sh) 4,877,976	N.P.	Tide Water Associated	....	Aug. 1, 27	26,000	18½	19	18¼	18¼	— ⅝
91¾	81⅞	90⅞	84	$72,989,200	$100	do pfd	$1.50Q	Oct. 1, 29	2,400	87½	88⅛	87	87½	— 1
14½	6¾	13⅞	9	(sh) 3,842,029	N.P.	Transcontinental Oil	....	....	107,400	12½	12⅞	11⅞	12⅝	— ⅛
58	42¾	54½	45¾	$40,858,375	$25	Union Oil of California	50cQ	Aug. 10, 29	35,000	50⅛	53⅞	50¼	53⅝	+ 3½
128⅛	110	163¾	121⅞	31,101,200	100	Union Tank Car Co	$1.25Q	Sept. 3, 29	200	159	159	159	159	0
44⅞	26	42⅞	28½	(sh) 488,359	N.P.	Warner Quinlan	50cQ	Oct. 1, 29	9,600	29	29¾	27⅜	28½	— ⅝
38	20⅛	40½	30¼	(sh) 490,000	N.P.	White Eagle Oil & Refining	50cQ	July 20, 29	3,600	35½	36	34½	34½	— 1½
22⅛	17¾	35	17	(sh) 428,967	N.P.	Wilcox Oil & Gas	....	May 10, 28	2,900	17¾	17¾	17⅛	17¼	— 5⅛

*New High †New Low XEx-Dividends ‡Also Extras s-Stock Total Sales 1,868,820

Pittsburgh Stock Exchange

Transactions Week Ended Sept. 27, 1929

	Sales	High	Low	Last	Change
Ark. Nat. Gas	10,785	*26	22¾	23¼	+1¼
do pfd	1,958	85⅛	81¾	81¾	— ⅜
Devonian Oil	2,995	15½	14¾	15¼	+ ½
Dixie Gas pfd	35	76	76	76	—1
Lone Star Gas	24,448	*68⅛	63½	66½	+3
Petroleum Explor.	10	30	30	30	0
Salt Creek Cons.	100	3	3	3	+ ¼
Shamrock O & G.	536	15	14⅞	15	....

Pittsburgh Curb Market

Transactions Week Ended Sept. 27, 1929

	Sales	High	Low	Last	Change
Ark. Gas A	6,005	24¾	23	23	....
Phoenix Oil	4,600	.80	.80	.80	....

Gulf Elects Two Vice-presidents

PITTSBURGH, Sept. 30.—J. W. Williams and W. V. Hartmann, Sept. 30 were elected vice-presidents of the Gulf Refining Co. succeeding G. R. Nutty who recently was elected president of the company. Mr. Nutty succeeds George S. Davison who retires as president Oct. 1. Mr. Hartmann and Mr. Williams have been associated with Mr. Nutty in the sales department of the Gulf.

Columbia Refg. Improves Marketing Outlets

CLEVELAND, Sept. 26.—Improvements in eight service stations in northern Ohio are announced for the Columbia Refining Co., here by Burt Zimmerman, manager.

An English type station is nearing completion at E. 140 St. and Milverton Ave., Cleveland. At St. Clair Ave. and E. 43 St., Cleveland, a 33 foot parcel adjoining the station has been acquired on a 99 year lease and additional buildings will be erected.

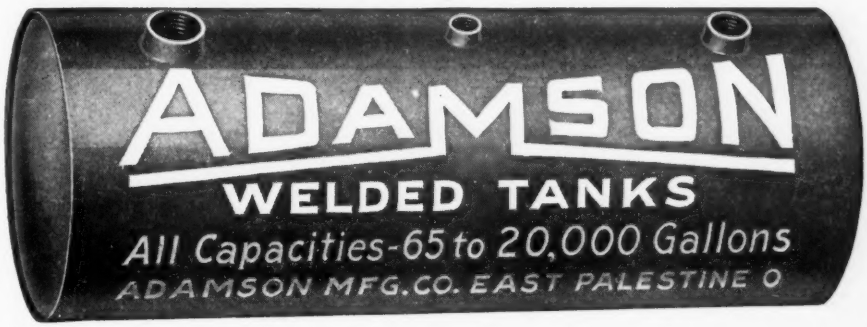
Additional facilities will be provided for the station at E. 93 St. and Parkview Ave., Cleveland, where 50 feet of additional land has been purchased. The property at Fulton and Leading Aves., Cleveland, where the lease was about to expire, has been purchased.

At South Lorain the lease has been extended and improvements will be made. A brick station of English design is nearing completion at Oak Harbor. Litigation on a location in Willoughby has been ended and a station will be erected. In about two weeks the English type station in Conneaut will be completed.

Cleveland Stock Market

Sept. 27	Par Value	Bid	Asked
Canfield Oil Co	$100	...	x140
do pfd	100	....	....
Fred G. Clark	10	11	11½
National Refining	25	37¾	39
do pfd	100	128	135
Paragon Refining	25	18	19½
do pfd	N.P.	...	x50
do ctfs	..	18½	19

x Ex dividend



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Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE — LUBRICATING OILS
NAPHTHA — GAS — OILS
WAX — PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

General Sales Offices
PITTSBURGH, PA.

District Sales Offices
New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

Oil Samples make Sales

~in these clear, brilliant bottles

Your product is your best salesman, so make sure that it is dressed in the best possible way. Owens-Illinois sample oil bottles are hand-blown of the finest perfume-bottle glass to give the maximum in beauty and display.

Special attention is given to the necks of these beautiful bottles. They permit of perfect and uniform corkage.

For a slight extra charge you may have your trade-mark blown on each bottle. Obtainable in 2, 4 or 8 oz. sizes. Samples gladly sent upon request. Owens-Illinois Glass Company, Toledo, Ohio.

OWENS·ILLINOIS
BOTTLES

Standard Oil Stocks on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Change
22⅜	14⅞	18¾	14¼	£4,126,460	£ 1	Anglo-American Oil	36c	June 5, 29						
21¼	15	18	13	.....	....	do certificates	36c	June 5, 29	2,300	15	15⅝	15	15½	+ ½
20½	14⅜	17	12¾	.....	£ 1	do cts. non-voting	36c	June 5, 29	100	13½	14	13¼	13⅞	+ ⅝
5	1¼	2⅜	1⅛	(sh) 500,000	N.P.	Atlantic Lobos	.....	.....	100	1⅛	1⅛	1⅛	1⅛	— ⅛
9¾	3¼	4⅛	1½	$10,000,000	$50	do pfd	.....	.....	100	1⅝	1⅝	1⅝	1⅝	— ⅛
56	44½	46½	26	$1,000,000	25	Borne-Scrymser	‡$1S.A.	Apr. 15, 29	300	27⅞	27⅞	27⅞	27⅞	— ⅞
76	58	74¼	58⅜	10,000,000	50	Buckeye Pipe Line	‡$1Q	Sept. 14, 29	100	67	67	67	67	— 1⅜
161	117¼	210	140⅛	3,000,000	25	Chesebrough Mfg	‡$1Q	Sept. 30, 29						
23	16	29	16⅞	36,123,350	10	Continental Oil	.....	Dec. 15, 27	1,600	18⅞	19⅞	18⅞	19⅜	+ ½
17½	9½	11⅜	7⅜	.....	N.P.	Creole Petroleum	.....	.....	4,200	8⅞	9	8⅛	8¼	—⅜
82	67	95	60	1,500,000	50	Cumberland Pipe Line	$1Q	Sept. 16, 29	50	60	60	†60	60	— 2
88	64⅛	70½	50	5,000,000	100	Eureka Pipe Line	$1Q	Aug. 15, 29	50	50	50½	50½	50½	+ ½
13	4¼	7	5	16,000,000	100	Galena Signal Oil	.....	June 30, 25	.....	.....	.....	.....	.....	.....
86	26	90	73½	4,000,000	100	do new pfd	.....	June 30 26	.....	.....	.....	.....	.....	.....
89¾	35	88	73½	2,000,000	100	do old pfd	.....	June 30, 26	.....	.....	.....	.....	.....	.....
114¾	59¼	126⅞	89⅝	73,685,700	25	Humble Oil & Refining	‡30cQ	Oct. 1, 29	11,300	119⅞	120⅝	115⅝	117	— 2⅞
290½	176½	340½	285	20,000,000	100	Illinois Pipe Line	$10S.A.	June 15, 29	450	300¼	304⅛	300½	304	— 2½
104	56¾	41	26⅝	(sh) 26,421,768	N.P.	Imperial of Canada	12½cQ	Sept. 2, 29	7,800	37⅞	38	36¼	37	— 1
91⅞	74⅝	30⅞	26¾	$1,000,000	$10	Indiana Pipe Line	.....	.....	800	29½	29⅝	29½	29⅝	+ ⅛
55	35	29⅜	22½	(sh) 14,247,088	N.P.	International Petroleum	12½c	June 25, 29	8,400	26⅝	27	25½	25⅝	— 1⅜
32⅜	19⅜	25⅞	20⅝	$6,363,350	12.50	National Transit Co	25cQ	Sept. 16, 29	400	21⅛	21¼	†20⅝	20⅝	— ⅝
75	38½	85	72	1,000,000	10	New York Transit	.....	July 15, 26	.....	.....	.....	.....	.....	.....
69	56½	63	52	2,000,000	50	Northern Pipe Line	$2S.A.	July 1, 29	.....	.....	.....	.....	.....	.....
83½	58½	79⅞	64⅛	60,000,000	25	Ohio Oil Co	50cQ	Sept. 14, 29	800	77	79⅛	76⅞	78	+ 1⅛
84	28	44½	23⅛	10,000,000	25	Penn Mex. Fuel	$1	Sept. 30, 29	100	30	30	30	30	— 2
220	167	50	36½	4,000,000	25	Solar Refining	$1.25S.A.	June 20, 29	100	36½	36½	36½	36½	0
19	12	22½	13	1,000,000	10	Southern Pipe Line	$1	Mar. 1, 29	500	21¾	23½	21¾	21¾	+ ¼
71⅞	36¾	60¼	40⅜	30,000,000	25	South Penn Oil	50cQ	Sept. 30, 29	8,600	49	49	48⅜	48⅜	— 51⅛
102	70	70	58	1,750,000	50	South West Pa. Pipe Lines	$1	Oct. 1, 29	50	58	58	†58	58	0
95⅞	70⅞	103¼	51½	348,175,069	25	S. O. Indiana	62½cQ	Sept. 16, 29	38,600	55⅛	55⅞	53⅝	53⅝	— 1⅜
27¾	15	26	18	8,000,000	25	S. O. Kansas	.....	June 16, 24	2,100	25	25	24¼	24¾	— ½
49	44	45¼	35⅛	25,654,516	10	S. O. Kentucky new	40cQ	Sept. 30, 29	15,700	42⅞	42⅞	41	41⅝	— 1⅛
54⅝	39⅞	50¼	45½	4,649,225	25	S. O. Nebraska	‡62½cQ	Sept. 20, 29	100	47¼	47¼	47¼	47¼	— ⅝
134	71	129	110¼	14,000,000	25	S. O. Ohio	62½cQ	Oct. 1, 29	200	113½	113½	113½	113½	— ⅞
125	116	124½	113½	7,000,000	100	do pfd	$1.75Q	Sept. 3, 29	50	115¼	117½	115¼	117½	+ 1½
23½	16	18	14	861,466	25	Swan Finch	30c	Jan. 15, 29	.....	.....	.....	.....	.....	.....
111	72	133¾	105½	126,154,000	25	Vacuum Oil	$1Q	Sept. 20, 29	2,300	121¾	123⅜	120⅝	120¾	— ¼

*New High †New Low ‡Also Extras

Independent Oils on New York Curb

1928 High	1928 Low	1929 High	1929 Low	Par Value	Stocks	Transactions Week Ended Sept. 28 Sales	First	High	Low	Last	Change
1¼	.53	.72	25	$5	Amer. Cons. Oilfields	1,200	¼	¼	¼	¼	— 1/16
9½	3⅛	8⅝	3	N.P.	Amer. Maracaibo	4,200	3⅝	3⅝	†3	3	— ⅝
4½	2¼	5	1⅝	$10.	Argo Oil	300	1⅞	1⅞	†1⅝	1⅝	— ¼
3¾	3⅜	26	3¾	N.P.	Arkansas Nat. Gas	60,300	24	*26	23⅜	23⅞	0
.....	.....	24¾	6¾	N.P.	do A	164,000	23⅝	24⅝	22⅛	23	— ½
.....	.....	9	7⅞	10	do pfd	600	8¼	8½	8¼	8½	+ ⅛
55	32⅜	70	50	N.P.	British American Oil	.....	.....	.....	.....	.....	.....
23⅞	3¾	4⅞	2⅝	25c	Carib Syndicate	1,300	2⅝	2⅞	2⅝	2⅝	0
.....	.....	60⅛	27¾	N.P.	Cities Service new	311,300	58⅝	*60⅛	58⅝	60¼	+ 2⅛
103½	94½	98½	88⅜	100	do pfd	1,200	94½	94¾	94⅜	94⅝	0
9⅝	8⅞	9¼	8⅞	10	do pref. B	.....	.....	.....	.....	.....	.....
97	88½	96	89¾	100	do pref. BB	100	89⅜	89¾	†89¾	89¾	— ⅛
2¼	1	1½	½	1	Colombia Syndicate	8,400	¾	¾	†½	¾	0
17¾	9¾	15	6	N.P.	Colon Oil	1,400	8⅞	9	8½	8½	— ⅜
8⅞	6¼	11⅛	4⅞	10	Consolidated Royal	3,100	5½	5½	5⅛	5⅛	— ⅜
.....	.....	100	45	N.P.	Cosden Oil Co	200	93½	94¾	89¾	94	— 1¾
.....	.....	82	71	.....	do pfd	600	75	75	75	75	0
3¼	.76	2½	1⅛	N.P.	Crown Central	1,600	1⅛	1⅛	1⅝	1	— ¼
15	6¾	11⅞	8	N.P.	Crystal Oil	.....	.....	.....	.....	.....	.....
50	48	51⅛	51⅛	$100	do pfd	.....	.....	.....	.....	.....	.....
33½	8⅛	26	11¾	N.P.	Darby Petroleum	2,400	12	12⅛	†11¾	11¾	0
2⅞	1	10⅞	2	N.P.	Derby Oil & Refining	1,600	6½	6⅝	6⅛	6½	— ⅛
21¾	7⅛	44	20⅞	N.P.	do pfd	.....	.....	.....	.....	.....	.....
165	101⅛	209	142⅛	$25	Gulf Oil Corp	4,800	195⅛	197⅜	187⅞	191¼	— 3½
7⅛	5⅝	7⅛	3½	5	Homaokla Oil	5,000	3¾	3⅞	†3½	3⅝	— ⅛
3⅝	1	2⅞	1⅛	10	Intercontinental Pet.	6,300	1⅜	1⅝	1⅜	1⅜	0
3	¼	3⅜	1½	N.P.	Kirby Petroleum	4,300	2½	2¾	2½	2½	— ⅛
9⅛	5⅛	6⅛	2⅞	N.P.	Leonard Oil & Dev	3,300	4⅝	4¾	3¾	3¾	— ⅞
43⅜	20	38⅞	24¾	N.P.	Lion Oil & Refg	1,800	30⅛	32⅞	29	32⅞	— ⅛
69½	48⅛	87	67	$25	Lone Star Gas	86,900	66	*67⅞	64¼	67¼	+ 2⅝
.....	.....	67⅞	32¼	.....	do new	4,500	½	5/8	1/16	½	0
1⅞	.50	1¼	⅝	1	Magdalena Syndicate	100	19½	19½	†19½	19½	— 2
48½	32	38½	19½	N.P.	Margay Oil	.....	.....	.....	.....	.....	.....
8	2¾	6⅜	2⅞	N.P.	Mexico-Ohio Oil	.....	.....	.....	.....	.....	.....
.....	.....	42	15⅞	N.P.	Missouri-Kan. P. L.	8,900	34¾	34⅞	31⅞	32⅝	+ 1⅝
1¼	.76	1½	⅞	1	Mountain & Gulf	800	7/8	7/8	7/8	7/8	0
28⅜	19½	22⅞	11	10	Mountain Producers	1,800	11	11½	11	11⅛	— ¼
.....	.....	43⅞	24¾	N.P.	Nat. Fuel Gas (new)	3,800	41¾	41¾	38⅝	39⅜	— 2⅜
5⅝	4¼	5	3	5	New Bradford	100	3⅜	3⅜	3⅛	3⅛	— ¼
5⅛	3	4¾	3	10	New England Fuel	200	3	3	3	3	0
11⅞	7⅛	9⅝	5⅜	1	New Mex. & Ariz	300	5⅝	5⅝	†5⅜	5⅜	— ½
15⅛	11½	24½	16	25	New York Petrol	.....	.....	.....	.....	.....	.....
13¾	8⅛	18½	8 ¾	N.P.	North Cent. Texas	800	12	12½	11¼	12½	+ ½
.....	.....	19¼	12 ½	N.P.	Oil Stock, Ltd. A	1,800	14⅜	14⅞	13⅜	14	— ½
.....	.....	18¼	14⅛	N.P.	do B	.....	.....	.....	.....	.....	.....
26¼	20	26⅞	14½	N.P.	Pacific Western Oil	1,000	24	24½	23	23	— 1⅛
6	2¼	3½	¾	N.P.	Pandem	700	1/16	1/16	†¾	1/16	+ 1/16
15⅝	8½	10¼	4½	N.P.	Pantapec	3,200	5	5	4¾	4¾	— ¼
20	10⅝	25½	22½	$25	Paragon Refg. B. ctfs.	4,700	25½	25⅞	†24⅝	24⅞	— ⅜
.....	.....	34½	24⅝	N.P.	Petroleum Corp	300	25⅝	25⅝	25½	25½	— ½
31⅜	26½	30	22	N.P.	Plymouth Oil	200	10	10	10	10	0
18	8	16	10	25	Red Bank Oil	300	4⅜	4⅜	†4⅛	4⅛	— ¼
13	4⅛	8⅛	4⅛	N.P.	Reiter-Foster	.....	.....	.....	.....	.....	.....
31½	23¾	25½	23⅞	$25	Richfield pfd	300	25	25⅛	23¼	24½	— 1
.....	.....	29	23	.....	Root Refining pfd	300	6¾	6¾	6⅛	6⅛	0
12	4⅝	11	5	N.P.	Ryan Consolidated	200	3	3	3	3	0
7¼	5½	5⅞	2	$10	Salt Creek Cons	900	14	14	13⅛	13¼	— ¾
35	23¼	25⅞	13	10	Salt Creek Prod	.....	.....	.....	.....	.....	.....
3⅛	1	2½	½	5	Savoy Oil	.....	.....	.....	.....	.....	.....
40	27	33⅛	32	25	Shreveport El Dorado	.....	.....	.....	.....	.....	.....
.....	.....	24	14½	N.P.	Southland Royalty	2,100	16	16	14¾	15	— 1½
.....	.....	12	8	N.P.	Sunray Oil	1,100	8½	8⅞	⅝	8	— 1
.....	.....	23	12½	N.P.	Texon Oil & Land new	2,900	14	15½	12¾	15	+ 1⅛
22½	13	16⅞	11⅝	$10	Tidal Osage	.....	.....	.....	.....	.....	.....
21¼	13⅛	16⅜	10⅛	10	do not-voting	.....	.....	.....	.....	.....	.....
93⅝	75	155	80	100	Transcontinental pfd	.....	.....	.....	.....	.....	.....
74¼	18	81½	66	10	Venezuela-Mexico	.....	.....	.....	.....	.....	.....
9⅛	4⅝	6⅛	3	5	Venezuelan Petrol	5,800	3½	3½	3¼	3½	— ⅛
.....	.....	72¼	66	N.P.	White Star Oil	.....	.....	.....	.....	.....	.....
8¼	4⅛	9⅛	4⅜	1	Woodley Petroleum	400	4⅛	4¼	4⅛	4¼	+ ⅛
⅝	⅜	5⅜	1	25	Y Oil & Gas	500	1¼	1¼	1⅛	1¼	— ¼

*New High †New Low

New York Curb Bonds

Week Ending Sept. 27, 1929

	High	Low	Last	Change
Beacon Oil 6s '36	117	117	117	—2
Cities Serv. 5s '66	83	81¾	82	—½
Cities Serv. G. 5½s '42	87	86⅝	86¾	0
Cities Serv. G. P. 6s '43	93½	92⅛	92½	0
Cont. Oil 5½s '37	93	89	93	+1
Empire O & R 5½s '42	87	86⅜	86⅞	+ ¼
Gulf Oil 5s '37	99	98¼	98¼	— ¼
Gulf Oil 5s '47	99¾	99	99	—⅜
Indep. Oil 6s '39	106¾	104	105⅛	+ ⅛
Shell Union Oil 5s '49	100¼	100	100⅛	0
Sun Oil 5½s '39	100½	99¾	100½	+1
Valvoline Oil 7s '37	102¾	102¾	102¾	— ⅛

Oil Dividends

	Amount	Stock of Record Payable	Record
Darby Petroleum q	25c	Oct. 15	Oct. 4
Barnsdall Corp. A q	50c	Nov. 7	Oct. 7
do B q	50c	Nov. 7	Oct. 7
Indian Refining pfd q	$1.75	Oct. 1	Sept. 25

New York Bonds

Week Ending Sept. 27, 1929

	High	Low	Last	Change
Assoc. Oil gold 6s	102	101¾	104¾	0
Atlantic Refg. deb. 5s	100	99⅝	100	+ ¼
Cal. Pet. 5s	96	95	95	—1
Cal. Pet. 5½s	100½	98⅞	98⅞	— ⅛
General Asphalt 6s	104¾	104¾	104¾	0
General Pet. 5s	99	99	99	0
Humble Oil & Refg. 5s	99¾	99½	99¾	+ ⅛
Humble Oil & Refg. 5½s	100¼	100	100	— ⅛
Pan Amer. P & T 7s	104¾	104¾	104¾	0
Pan Amer. P & T 6s	107½	107	107¼	— ¼
Pan Amer. P & T 6s	94⅜	93	93	—1½
Phillips Pet. 5½s	88¾	88	88	— ¼
Pierce Oil deb. 8s	105½	105½	105½	0
Pure Oil 5½s	97⅞	97⅜	97½	— ⅜
Richfield Oil Calif. 6s	100½	98½	98½	—1½
Shell Union Oil 5s	93½	92¾	93	0
Sinclair Con. Oil 7s	101¾	101	101⅛	— ⅝
Sinclair Con. Oil 6½s	99¾	99¼	99½	0
Sinclair Con. Oil 6s D	98¾	98⅜	98½	+ ¼
Sinclair Con. Oil Crude 5½s	95½	94¼	95½	+ ½
Sinclair Pipeline	93	92½	92¾	— ¼
Skelly Oil 5½s	90½	89½	89½	— ½
S. O. N. Y. 4½s	94	92½	94	+1
S. O. N. J. 5s	100⅞	100¼	100⅜	+ ⅛
Trans.-Cont. 6½s	102	100⅜	100½	—1⅛
Union Oil of Calif. 1st 5s A	97	96½	97	0
Union Oil of Calif. 5s C	97¼	96½	97	0
Warner-Quinlan 6s	95½	95	95	— ¼
White Eagle Oil 5½s	101½	101½	101½	— ½

Roy E. Collom, manager of the California division of the new Continental Oil Co.

Collom Heads Continental California Division

LOS ANGELES, Sept. 26.—With the consolidation of Marland Oil Co. of California and Continental Oil Co. of Arizona under the parent name of Continental Oil Co. (Delaware) effective September 1, it was announced that Roy E. Collom would manage the California division of the new company.

Mr. Collom has been an officer of the Marland Co. of California for the past six years, prior to which he was California state Oil and Gas supervisor. During the time he has worked among oil operators Mr. Collom has made many friends and has also gained a reputation as an authority on matters pertaining to the oil industry.

A reorganization of the various departments of the combined companies results in an overlapping of the duties of the department heads with a consequent change in the personnel. Part of this revised list include the following: Olen Lane, superintendent of land and scouting, H. C. Thomson, in charge of the auditing and personnel departments, A. H. Bell, production engineer, and R. M. Barnes, in charge of geology and research.

Continental's production averages close to 25,000 barrels a day, from properties located at Seal Beach, Long Beach, Kettleman Hills and Richfield. In addition to the above proven areas Continental has two wildcat wells in Ventura County at Carpenteria and Sulphur Mountain.

Loreco Distribution In Arkansas Grows

CLEVELAND, Sept. 26.—As a part of its expansion program in Arkansas and Louisiana the Louisiana Oil Refining Corp., has purchased the Big 4 Oil Co. of Pine Bluff and the Lafayette Oil Co. at Lafayette, La. Last week it was announced that the company had purchased the Gay Oil Co., effective Oct. 1.

With the addition of the Gay properties the Louisiana will have distribution throughout the southern two thirds of Arkansas from Fort Smith on the west to Memphis on the east and as far north as Batesville.

N. P. N. Ownership Statement

Statement of the ownership, management circulation, etc., required by the Act of Congress of August 24, 1912, of National Petroleum News, published weekly at Cleveland, Ohio, for October 1, 1929, State of Ohio, County of Cuyahoga.

Before me, a notary public in and for the State and County aforesaid, personally appeared A. W. Brobst, who, having been duly sworn according to law, deposes and says that he is the secretary of The National Petroleum Publishing Company and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, The National Petroleum Publishing Company, Cleveland, Ohio; editor, Warren C. Platt, Cleveland, Ohio; managing editor, V. B. Guthrie, Cleveland, Ohio; and business managers are: None.

2. That the owners are: Warren C. Platt, Cleveland, Ohio; Bess H. Platt, Cleveland, Ohio; V. B. Guthrie, Cleveland, Ohio; A. W. Brobst, Cleveland, Ohio; D. H. Little, Tulsa, Okla.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of the total amount of bonds, mortgages, other securities are None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holders appears upon the books of the company as trustees or in any other fiduciary relation, the names of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiants' full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise to paid subscribers during the six months preceding the date shown above is (This information is required from daily publications only.)

(Signed) A. W. BROBST, Secretary.

Sworn to and subscribed before me this 27th day of September, 1929.

(Signed) H. L. RICHEY, Notary Public.

(My commission expires 5-7-30.)

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